APR 15 1921

This Issue Exceeds 80,500 Copies

THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $6.00 | PUBLISHED WEEKLY | Single Copies, 20 Cents

VOLUME 76, No. 11 | 535 North Dearborn Street, CHICAGO, ILL. | MARCH 12, 1921

CONTENTS AND DIGEST

Newer Aspects of Some Nutritional Disorders. Alfred F. Hess, M.D., New York 693

Disorders caused by a deficiency of the vitamins or accessory food factors. Rôle of unnatural mode of life in the production of these disorders. Deficiency disorders other than those due to a lack of vitamins. Scurvy. What is known about the nature of vitamins. Antiscorbutic value of natural foodstuffs. Factors that tend to destroy vitamins in these foodstuffs. Effect of oxidation. Rickets and its seasonal incidence. Value of cod liver oil. Far-reaching effects of inadequate diet. Interrelation of nutrition and infection.

Arteriosclerosis and Cardiovascular Disease: Their Relation to Infectious Diseases. William Ophüls, M.D., San Francisco 700

Results to determine the suspected interrelation between certain infectious diseases and the later development of arteriosclerosis or of the syndrome of cardiovascular disease.

The Functions and Scope of an Industrial Clinic in a General Hospital. Harry Linenthal, M.D., Boston 701

Working of the clinic. Report of cases, not specific occupational diseases, illustrating the part industry plays in producing the more common diseases in all classes of people.

The Application of Certain Physical Efficiency Tests. Verner T. Scott, M.D., Mitchel Field, L. I., N. Y. 705

Comparison of Schneider's and Crampton's tests. Applications of Schneider's test and reasons for its adoption by the Air Service.

Relative Effectiveness of Various Forms of Treatment in Neurosyphilis: Observations of the Comparative Value of Routine Intravenous Treatment, Spinal Drainage and Arsphenamized Serum Intraspinally (Swift-Ellis). John H. Stokes, M.D., and Earl D. Osborne, M.D., Rochester, Minn. 708

Observations at the Mayo Clinic.

Gallbladder Disease: Report of Two Hundred and Thirty Cases. Donald S. Adams, M.D., Worcester, Mass. 710

Review of Memorial Hospital records.

Removal of the Gallbladder Without Drainage: Further Observations. A. Murat Willis, M.D., Richmond, Va. 712

Safety of procedure, and superiority of results.

Bronchiectasis and Bronchitis Associated with Accessory Sinus Disease. Gerald B. Webb, M.D., and G. Burton Gilbert, M.D., Colorado Springs, Colo. 714

Clinical Evidences of Acidemia in Chronic Nephritis. Beaumont S. Cornell, M.B. (Tor.), Brockville, Ont. 715

Results of Operation for Varicocele. John Douglas, M.D., New York 716

Organ Stimulation by the Roentgen Ray. William F. Petersen, M.D., and Clarence C. Saelhof, M.D., Chicago 718

(Continued on next page)

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

Copyright, 1921, by the American Medical Association

NEXT ANNUAL SESSION, BOSTON, MASS., JUNE 6-10, 1921

Bulletin

REPRINTED

—

The first printing of Crile and Lower's "Surgical Shock" is exhausted. A reprint is coming from our presses.

Have you a copy of the work?

The Surgical Clinics of North America

Clinical postgraduate *case-teaching* is admittedly the best method of instruction. But making the circuit of the surgical centers of America is a task beyond the available time of the busy surgeon. Therefore, those doing surgical work will be interested in knowing that we have arranged to bring the actual amphitheater teaching of America's leading surgeons direct to the busy surgeon's door.

In the SURGICAL CLINICS OF NORTH AMERICA you get, not the work of one surgical center, but of them all; not the work of assistants, mind you, but of the *chiefs themselves*, vividly set down, forcefully driven home, each number instructively illustrated. Shall we add your name to the long subscription list?

Issued serially, one octavo of 300 pages, illustrated, every other month (six numbers a year).
Per year: Cloth, $16.00 net; paper, $12.00 net.

SAUNDERS, *Publishers*

See Page 3

CONTENTS AND DIGEST—Concluded

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Lesions of Typhoid Fever Produced by Bacillus Faecalis-Alkaligenes. Mazyck P. Ravenel, M.D., Columbia, Mo. 720

Report of a Case of Atresia of the Ileum with Microcolon. Maurice Kahn, M.D., Los Angeles 721

Report of a Case of Anaphylaxis Following an Intradermal Protein Sensitization Test. H. J. Gerstenberger, M.D., and J. H. Davis, M.D., Cleveland 721

A Simple Method for Counting Blood Platelets. M. A. Van Herwerden, M.D., Utrecht, Holland 723

Apparatus for Continuous Intravenous Administration of Fluids by Which the Rate of Flow may be Easily Determined and Controlled. Hugh F. Freidell, M.D., Santa Barbara, Calif. 724

Thrush Complicated by Acute Polyarthritis in an Infant. Morris Goldring, M.D., Brooklyn 724

Suggestions for Identification of Blood Groups. Robert W. Belknap, M.D., Cambridge, Mass. 724

A Short Silver Impregnation Method for the Demonstration of Spirochaeta Pallida in Tissue. Samuel R. Haythorn, M.D., Pittsburgh 725

Pneumoperitoneum as a Laparotomy Adjunct. Robert Emmett Farr, M.D., Minneapolis 725

EDITORIALS

The Medical Treatment of Gastric Ulcer 726

Successful use of glucose enemas with feeding of olive oil and egg white.

The Significance of Blood Plasma Volume 726

An effort of the organism to secure an equilibrium between cells and plasma.

Food and the Child 727

Greater need in adolescents than in adults.

CURRENT COMMENT

The Alleged Germicidal Properties of Milk 728

Decrease of bacteria in raw milk under certain conditions.

The Motility of the Pyloric Sphincter 729

A supplement to the activity of the antrum.

Tribute We Paid Germany 729

Profits from the sale of "salvarsan."

Unification of Federal Health Work .729

A reminder to the party now in power.

ASSOCIATION NEWS 730

The Boston Session — Annual Conference on Medical Education and Hospitals, License and Public Health.

MEDICAL NEWS 734

GOVERNMENT SERVICES 738

FOREIGN LETTERS 738

London—Paris—Vienna.

MARRIAGES 741

DEATHS 742

PROPAGANDA FOR REFORM 743

More Misbranded Venereal Nostrums.

CORRESPONDENCE 744

"The Doctor's Defense" — "The Etiology of Common Warts"—"Nephritis in Childhood" —The Clinical Pathologist and the Laboratory Technician.

QUERIES AND MINOR NOTES 745

Toxicity of Apothesin and Other Local Anesthetics — Fumigation Following Contagious Diseases.

MEDICAL EDUCATION, REGISTRATION AND HOSPITAL SERVICE 746

Coming Examinations — Delaware November Examination—Maryland December Examination.

BOOK NOTICES 746

MEDICOLEGAL 747

Lawful Procedure to Protect Against Infectious Diseases; Habeas Corpus — Annulment of Marriage for Concealment of Mental Condition.

SOCIETY PROCEEDINGS 747

Coming Meetings.

CURRENT MEDICAL LITERATURE

American Medical Journals

Action of Light on Leukocyte Count—Hookworm Infection—Studies on Yellow Fever—Eating and Drinking Arcs in Brain—Studies in Blood Pressure—Syphilis: Latent Infections 748

Strain in Spirochetes—Syphilis as Cause of Nodular Liver Cirrhosis—Incidence of Congenital Syphilis — Dissemination of Spirochaeta Pallida—Secondary Syphilitic Infection—Digestion of Keloids — Cardiorespiratory Mechanism in Health and Disease—Spread of Carcinoma of Pancreas 749

Bronchial Asthma: Response to Pilocarpin and Epinephrin — Electrocardiography in Angina Pectoris—Renal Threshold for Glucose—Effect of Antisyphilitic Treatment on Colloidal Gold Reaction—Sinistrality and High Blood Pressure—Primary Disease of Pelvic Lymph Glands—Fascia Lata Used to Mobilize Stiff Knee—Size of Women 750

Tuberculous Meningitis—Syphilis and Regeneration—Trauma as Factor in Etiology of Hydronephrosis — Relation of Prostate to Mental Efficiency — Vas Puncture to Cure Chronic Seminal Vesiculitis—Antigonococcus Serum in Treatment of Gonorrheal Complications—Diaphragmatic Hernia 751

Cysts of Pancreas—Polycystic Kidney 752

Foreign Medical Journals

Torsion of Omentum—Better Training in Orthopedics — Use of Vitex Peduncularis in Malaria 752

Extirpation of Pancreas—Hemolytic Test for Kala—Permanganate Pills in Cholera—Developmental Defect—Treatment of Cachar Sore —Unusually Large Ovarian Cyst—Relief of Gastric Ulcer Pain—Incision for Appendectomy—Operation for Prolapse of Rectum.753

Estimation of Sugar Tolerance—Spinal Fluid in Cerebrospinal Fever—Influenzal Bronchiolitis and Bronchopneumonia—Spirochaetosis Icterohemorrhagica — Peptone Injections in Septicemia — Tricuspid Stenosis — Parietal Endocarditis 754

Hematoblasts in Malaria and Ankylostomiasis —Vaccination Against Typhoid — Typhoid Since the War—Locating Submarines—Liver Symptoms from Latent Appendicitis—Dermatoses in the Emotional—Diffuse Acute Scleroderma in Children—Alkali and Falling of the Hair — Recurring Dermatitis of the Cheek 755

Urticaria — Epidemic Encephalitis—Myasthenia with Changes in Jaws—Dilatation of Cecum from Incontinence of the Pylorus — The Spirit of Observation in Medicine—Epidemic Encephalitis — Deformity of Fifth Lumbar Vertebra 756

Intratracheal Injections—Paralysis of Cervical Sympathetic—Research on Obesity — Angina Pectoris and Raynaud's Disease—Silver Salvarsan and Luargol—Exclusion of the Pylorus—Pulsus Alternans and Uremia—Signs of Death of Fetus—The Offspring in Inherited Syphilis 757

Enterostomy in Peritonitis—Treatment of Incarcerated Obturator Hernia—Bilateral Albee Implants — Epithelioma of a Finger — Traumatic Aneurysms — Talipes Equinus — Rotation in Fracture of the Humerus — Cervical Ribs — General Anesthesia for Operation on the Mouth—Potassium Chlorate Poisoning—Protein Therapy in Infectious Diseases—Mycosis of the Lung — Vertigo of Central Origin — Etiology of Epidemic Encephalitis 758

Cholesterinemia—Typhoid in Infants — Epidemic Encephalitis—Abortive Measles—Unusually Long Incubation of Measles—Cystic Lymphangioma of the Shoulder—Influence of Vagotonia in the Clinic — Influence of Thyroid-Parathyroidectomy — Syphilis of the Lung—Opalescent Effusions—Treatment of Gaps in Tendons 759

Gastric and Duodenal Ulcer — Sarcoma of Bones in Limbs—Transverse Resection of Stomach for Hard Ulcer—Successful, Simplified Antethoracic Esophagoplastics—Experimental Pseudarthrosis — Projectiles in the Lungs—Transmission of Human Cancer to Mice—Rectal Temperature After Amputation of Thigh—Heart Findings in Pathologic Conditions of the Ductless Glands—Reduction of Sugar in the Blood and Urine by Roentgen Irradiation of the Suprarenals in Diabetes 760

Infantile Paralysis—Volhard's Theory in Regard to Acute Diffuse Glomerulonephritis—Acute Hemorrhagic Pancreatitis with Necrosis of Fat Tissue—Experimental Studies of Tetany—Spasm of Sphincter Ani as a Cause of Hirschsprung's Disease—Diffuse Colloid Struma — Bilirubin in Human Serum in Health and Disease 761

Postoperative Intestinal Diseases, Especially Colitis—Operative Treatment of Joint Fractures—Deafness in Gout—Ear Changes in Gout—Urobilin in the Duodenal Secretion—Appendix Stones and Roentgenography—Intravenous Injections of Calcium Chlorid in the Treatment of Hemorrhages and Diarrhea—Personal Prophylaxis Against Typhus 762

TONICS AND SEDATIVES—BOOKS RECEIVED ....Adv. Page 20

WASSERMANN and All Other Laboratory Tests | THE MEDICAL RESEARCH LABORATORIES, INC. B. GRUSKIN, M.D., 800-4244 Marshall Field Annex Building, CHICAGO | PROMPT REPORTS

A LABORATORY TECHNICIAN CAN SECURE A DESIRABLE CONNECTION THRU A CLASSIFIED AD IN THE JOURNAL

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 76, NO. 11 CHICAGO, ILLINOIS MARCH 12, 1921

NEWER ASPECTS OF SOME NUTRITIONAL DISORDERS *

ALFRED F. HESS, M.D.

NEW YORK

One of the most novel medical conceptions is that serious diseases or functional disorder may be occasioned by a mere lack of certain constituents in the dietary. Until recently we were wont to associate tissue damage or functional disturbance solely with the introduction of some harmful foreign substance—chemical or bacterial—into the body. It is not only remarkable but also creditable that a concept so revolutionary should have gained wide acceptance in so short a time, not only among the medical and scientific world, but among the public at large. The first to bring forward convincing evidence in favor of this view was Eijkman [1] who noted in the course of his experiments in Java that fowl fed on decorticated rice became paralyzed and developed symptoms resembling beriberi, which disappeared when rice polishings or their alcoholic extract were added. The subject slumbered for some fifteen years when, less than a decade ago, Hopkins [2] established it on a scientific basis by demonstrating that animals were unable to live on a dietary composed of casein, starch, lard, water and a mixture of inorganic salts, after these ingredients had been carefully purified, but that this diet could be rendered adequate merely by adding a small amount of a natural food—a few cubic centimeters of milk. It will be noted that the new path was blazed as the result of empiric observation as well as carefully planned scientific investigation, and furthermore, that as has happened so frequently in the past, alert empiricism outran and prepared the way for the more carefully planned laboratory experiment. Today the fact that there are deficiency diseases and vitamins is taught to children in the schools, is bandied about in the advertising pages of the daily papers, and is the proper concern of the up-to-date mother. This rapid diffusion of scientific knowledge, despite the interruption of the war, furnishes a striking illustration of present-day alertness in connection with topics affecting personal health and vigor.

No doubt the disorders brought about by a deficiency of the vitamins or accessory food factors have occurred for centuries. To a considerable extent, however, they must be regarded as typically modern disorders. Viewed as a group they are a consequence of our unnatural mode of life and peculiar civilization, of the growth of immense cities housing millions of people, who are dependent on perishable foodstuffs transported from a great distance. To even a greater extent they are the product of countless ingenious methods devised mainly to render food stable—drying, heating, the addition of preservatives—most of which accomplish their objects, but incidentally rob the food of one or more of its essential constituents. In a measure these nutritional disturbances are a consequence of the supreme domination of the bacterial point of view, of the ever present dread of infection and solicitude to protect ourselves against contaminated foodstuffs. This fear has led to the demand for a more or less complete sterilization of foods, and to a preference of foodstuffs whose unsullied whiteness lends them the appearance of purity—as in the case of polished rice, and highly milled flour.

The current view associates deficiencies of the various vitamins with specific disorders, for example, with beriberi or with scurvy. Now, although it is quite true that such diseases demonstrate conclusively the absolute necessity of certain constituents in our dietary, it is likewise true that clear-cut disorders should not be regarded as the most common or important result of food deficiencies. It should be realized that a lack of these essential food factors generally does not bring about typical pathologic states, but obscure alterations of nutrition, ill defined functional disabilities, which cannot be characterized or even recognized as disease. It is such incomplete, larval forms of the deficiency disorders to which physicians will have to address themselves.

Nor should the domain of the deficiency disease be restricted to the narrow confines of disturbances brought about by a lack of vitamins. In a broader sense it includes malnutrition due to an insufficiency of any food constituent which is essential to normal metabolism. The peoples of the Central Empires, for example, as the result of a great lack of meat, milk, cheese and eggs, were compelled to subsist during the war on a dietary which was deficient in phosphoric acid as well as in one or more of the vitamins.

Many observations lead to the conclusion that these disorders are not limited to man, but to a large extent affect the animals which man uses for food. It has been found in Victoria, for example, that cattle raised on certain pastures develop paralysis and other infirmities which can be cured by fertilization of the soil. In the United States in some areas it is impossible to maintain cattle in good condition until the forage is improved by mineral or animal fertilizers, which illustrates that a deficiency in plant tissues leads to nutri-

* Read before the Harvey Society, Jan. 15, 1921.

1. Eijkman, C.: Eine beriberiaehnliche Krankheit der Huehner, Virchows Arch. f. path. Anat. **148**: 523, 1897.

2. Hopkins, F. G.: Feeding Experiments Illustrating the Importance of Accessory Factors in Normal Dietaries, J. Physiol. **44**: 425, 1912.

tional disorder in animals. Recently Hart, Steenbock and Humphrey [3] have confirmed these observations by careful experiments which showed how the mere addition of calcium to the fodder of cows prevented the birth of premature, weak or dead calves. Indeed, the extensive investigations of Forbes showing that cows producing large amounts of milk, and fed common winter rations, undergo constant losses of calcium, magnesium and phosphorus from their skeletons, suggest that large numbers of milch cows are suffering from a deficiency disease. These chemical analyses recall Hanau's report [4] of almost thirty years ago, to the effect that the bones of pregnant women, who had enjoyed apparent health, frequently were the site of lesions resembling osteomalacia—an interesting observation that might be substantiated during life by means of roentgenologic examinations.

SCURVY

The most clear-cut and sharply defined deficiency disease is scurvy. In fact, it is the only nutritional disorder brought about by inadequacy of diet—whether of vitamin, of a definite chemical substance, or of calories—which is associated with characteristic pathologic alteration. For we must bear in mind that the nerve degenerations of beriberi are not typical or diagnostic as are the bone lesions of scurvy. The latter disorder, therefore, is preeminently qualified to serve as the prototype of this class of diseases. The clinical picture usually called to mind by the word "scurvy" is that of an individual afflicted with a severe, acute disease; either an adult with bleeding, fungous gums, hemorrhagic eruption and painful gait, or a pale, unhappy infant, with gingival hemorrhages, and tenderness or swelling of one or both lower extremities. This is the classic text-book picture, which should not, however, be regarded as the ordinary or prevalent type of scurvy, either in adult or infant. The more common form is far more subtle in its manifestations, as is true of other nutritional disorders. In the adult it is evidenced by a lack of physical or mental vigor, vague pains suggesting rheumatism, an increased susceptibility to infection—conditions often impossible to diagnose when occurring sporadically, but conclusive when scurvy pervades a large group of individuals. Such scurvy was noted during the War of the Rebellion among the Northern troops, being referred to as a "scorbutic taint," and is mentioned in the recent report of the British troops in Mesopotamia. It has been described by me in relation to infants,[5] and during the war by physicians in Vienna who had charge of child-caring institutions.[6] They noted, in addition to infants suffering from manifest scurvy, a far larger number of what may be termed "subacute" or "latent" cases with the characteristic muddy complexion, lack of appetite, stationary weight and fretful disposition. That this syndrome is truly scorbutic has been proved repeatedly by the miraculous improvement which follows the addition of an antiscorbutic to the dietary. From our knowledge that about six months of the inadequate diet is required to bring about definite clinical manifestations, it follows that there must be a mild or latent type of scurvy and that this form must comprise the majority of the cases.

I shall not weary you with a review of the symptomatology of scurvy, but rather consider briefly the tissues and bodily functions which are particularly affected when the antiscorbutic food factor is lacking in the dietary. This vitamin is probably needed for the normal functioning of all the cells of the body—if we may interpret in this sense the general loss of mental and physical vigor—however its lack is evidenced in particular directions; in a failure of the integrity of the epithelium of the blood vessels; in a disintegration of the structure of the bones; in various disturbances of the circulatory system. It may be of interest to discuss briefly these three conditions, as their occurrence must be closely associated with the function of the antiscorbutic vitamin.

The lesion of the lining of the blood vessels is one of the most characteristic signs of scurvy; it is the cause of the hemorrhage of the gums, of the petechiae in the skin, of the subperiosteal hemorrhage, the hematuria, and all the other hemorrhagic manifestations which have frequently led to the inclusion of scurvy among the group of hemorrhagic diseases. The coagulability of the blood is almost normal in this disorder, the escape of the blood from the vessels being due to a weakening of their walls, or to a lesion of the endothelial cells or their cement substance. Applying a tourniquet to the upper arm (the "capillary resistance test"), thus subjecting the vessel walls to additional strain, will generally demonstrate this weakness, causing the appearance of numerous petechiae on the forearm. A similar weakness of the vessel walls does not occur in beriberi, or in any clinical condition attributed to a lack of vitamin.

It is unnecessary to dwell on the fact that the bones are particularly vulnerable to a lack of the antiscorbutic factor. For decades attention was centered to such a degree on the bones that clinicians as well as pathologists gave little heed to manifestations occurring in other organs.

The association of circulatory disturbances with "latent" or "subacute" scurvy is of particular interest as, until recently, these symptoms have been overlooked. They furnish a clinical link between scurvy and beriberi, the deficiency disease attributed to the lack of the so-called water-soluble vitamin. Frequently one of the earliest signs is tachycardia, a heart beat of 140 or 150 in an infant. But a still more noticeable and characteristic sign is the marked instability of the pulse rate, an increase of 20, 30 or 40 beats to the minute on the least exertion or from a slight rise in temperature. This tachycardia is similar to that of exophthalmic goiter, the electrocardiogram showing merely an exaggerated T-wave. Accompanying this tachycardia there is generally a polypnea—respirations mounting to 40, 50 or 60 to the minute. These symptoms may be termed "the cardiorespiratory phenomenon" of scurvy. That it is truly scorbutic may be deduced from the fact that it yields promptly to antiscorbutic treatment. Its occurrence points to an involvement of the nervous system, and at least to a functional relationship between this vitamin and nerve tissue, thus illustrating the inaccuracy of the appellation "antineuritic vitamin" as applied to the beriberi vitamin.

Another scorbutic symptom is enlargement of the heart, especially of the right heart, a lesion which has been considered typical of beriberi. For many years

3. Hart, E. B.; Steenbock, H., and Humphrey, G. C.: Influence of Rations Restricted to the Oat Plant on Reproduction in Cattle, Research Bull. 49, Agric. Exper. Station, Univ. Wisconsin, 1920.
4. Hanau, A.: Ueber Knochenveraenderungen in der Schwangerschaft, Fortschr. d. Med. **10**: 237, 1892.
5. Hess, A. F.: Subacute and Latent Scurvy: The Cardiorespiratory Syndrome, J. A. M. A. **68**: 235 (Jan. 27) 1917.
6. Tobler, W.: Der Skorbut in Kindersalter., Ztschr. f. Kinderh. **18**: 63, 1918.

this lesion was overlooked in scurvy, owing to the fact, as stated, that attention was narrowly focused on the bones, an oversight which is strikingly evident in reviewing necropsy protocols. It may be noted that Erdheim [7] of Vienna recently published a paper with the significant title of "Das Barlowherz," in which he describes thirty-one necropsies of infantile scurvy in which the heart was found enlarged in almost every instance.

In concluding this summary of the relation of scurvy and its vitamin to the circulatory system, passing attention should be called to oliguria, the diminished secretion of urine in the course of scurvy, a symptom at once alleviated on administering an antiscorbutic. This sign is still more common in beriberi.

NATURE OF VITAMINS

As is well known, the exact chemical structure of a vitamin is as yet a mystery. This lack of knowledge has led to skepticism, even to the point of doubting the very existence of the vitamins. This attitude is strange, in view of the fact that for almost a generation we have become quite accustomed to conceding the existence of factors which we are unable to isolate chemically. We know quite as much about the chemical nature of the vitamins as we do of complement, hemolysin or immune bodies—substances which have gained general recognition and are admitted to the select company of scientifically established entities. Not only the nature of the vitamins but also their mode of action is unknown: whether they exert their effect directly on the tissues, or indirectly, as has been suggested, through a hormone action. It seems clear that man cannot manufacture them, or at most can do so to a limited extent—insignificant from the standpoint of his well-being. We are therefore entirely dependent on our food supply for these essential factors. Nor has it been shown that any other of the higher animals possesses this ability. Lower forms of animal life, such as the yeast cell, seem to be able to elaborate vitamin, and plant cells possess this faculty to a high degree. Not only are we unable to manufacture these vitamins, but it is probable that we are unable to store them to any great extent. A series of experiments planned to investigate this question, and described in detail elsewhere,[8] led to the conclusion that at least guinea-pigs are unable to store the antiscorbutic vitamin. In other words, we are leading a precarious hand-to-mouth existence in regard to food factors which are essential not only to our health but also to our lives.

ANTISCORBUTIC VEGETABLES

It is hardly an exaggeration to state that in the temperate zones the development or nondevelopment of scurvy depends largely on the potato crop. In Ireland, when the potato has failed, scurvy has developed. The same thing has been true in Norway. To a minor degree this happened in 1914 in various localities in the United States, when the potato crop was inadequate. This is attributable in part to the fact that the potato is an excellent antiscorbutic, but to a greater extent because it is consumed during the winter in amounts that exceed the combined total of all other vegetables. The great nutritional value of the potato has not been explained. Its protein is stated to be of inferior quality, and it is poor in the water-soluble and in the fat-soluble vitamins. Nevertheless, the practical dietetic experience of nations and the prolonged investigations of Hinhede prove that it is a food of exceptional value.

One of the recent advances in the study of scurvy has been a more exact appreciation of the antiscorbutic value of foods, an appraisal of vegetable and animal foodstuffs from a quantitative standpoint. This has led to some surprises; for example, that the lime, which has been time honored as the most potent of antiscorbutics, is not comparable in this respect to the lemon or the orange. We have learned also to appreciate the value of the swede and of the tomato. But of still greater importance is the realization that any categorical statement of the relative value of antiscorbutic foods must be accepted with qualifications. *Foods should not be considered as chemical entities.* A lack of understanding of this fact has led to nutritional disease in man, and to confusion in investigations on animals. For example, a vegetable such as the carrot may possess moderate or very little antiscorbutic power, depending on attendant circumstances. If it is old, it is poor in the antiscorbutic vitamin, whereas if it is young and succulent, it is far richer in this factor. We had a surprising experience some years ago when guinea-pigs developed scurvy in spite of a ration which included large amounts of carrots such as are ordinarily fed laboratory animals. Experiment readily showed that 35 gm. a day per capita of these carrots was insufficient to protect a guinea-pig, whereas the same quantity of a young carrot sufficed. Furthermore, it is not immaterial whether the vegetables are freshly plucked or whether they are stale, and it is quite possible that antiscorbutic potency depends to a certain extent on the composition of the soil; in other words, that the vegetable may in turn suffer from a vitamin deficiency disease. Such being the case, the influence attributed to climate in the causation of scurvy—for, as is well known, certain countries have always been associated with scurvy—may be due partly to the effect of the soil on the vegetation. Therefore, in rationing individuals or groups, the quality as well as the quantity of antiscorbutic foodstuffs must be considered.

ANIMAL FOODS

Similar qualifications exist in regard to animal foods. For some years there has been marked divergence of opinion as to the antiscorbutic value of milk. This is an important question, as milk constitutes the basal diet of infants during the first year of life, and constitutes frequently their sole antiscorbutic supply. The conflicting opinions of various investigators have been reconciled recently and the results of those who believed milk to be poor as well as of those who believed it rich in this vitamin have been substantiated. Its potency depends almost entirely upon the fodder of the cow. We should long ago have established this fact, fortified by our knowledge that animals are unable to synthesize the vitamins. Hart, Steenbock and Ellis,[9] Dutcher and his associates,[10] and Hess, Unger and Supplee [11] have all reported similar results. In our

7. Erdheim, J.: Ueber das Barlowherz, Wien. klin. Wchnschr., 1918, p. 1293.
8. Hess, A. F.: Scurvy, Past and Present, Philadelphia, J. B. Lippincott Company, 1920.
9. Hart, E. B.; Steenbock, H., and Ellis, N. R.: Influence of Diet on the Antiscorbutic Potency of Milk, J. Biol. Chem. **42**: 383 (July) 1920.
10. Dutcher, R. A.; Eckles, C. H.; Dohle, C. D.; Mead, S. W., and Schaefer, O. G.: The Influence of Diet of the Cow upon the Nutritive and Antiscorbutic Properties of Cow's Milk, J. Biol. Chem. **45**: 119, 1920.
11. Hess, A. F.; Unger, L. J., and Supplee, G. C.: Relation of Fodder to the Antiscorbutic Potency and Salt Content of Milk, J. Biol. Chem. **45**: 229, 1920.

experiment, cows that had been for a period of three weeks on fodder which was almost completely devoid of antiscorbutic vitamin produced a milk that was almost devoid of this factor, although of normal caloric value and adequate in its fat, protein and carbohydrate content. Such results may well have far reaching dietetic significance; they raise the question whether "winter milk" supplied by stall-fed cows is a well balanced and complete food. It is quite possible that it may become part of dairy inspection to note the adequacy of the fodder as well as the sanitary conditions. Human milk no doubt also varies according to the nature of the woman's food, and in some instances is deficient in antiscorbutic vitamin, owing to eccentricities of diet or to poverty. During the winter months this may at times exert its influence on the nutrition of the child. In closing this brief consideration of the intrinsic variations of vitamin in animal tissues, I should like to suggest that the blood from which the milk is elaborated may also vary in its antiscorbutic content, and that from this standpoint it should not be regarded as a chemical entity.

FACTORS TENDING TO DESTROY THE VITAMIN

To understand the etiology of scorbutic malnutrition it is important to know the antiscorbutic value of natural foodstuffs; but it is equally important to appraise correctly the factors that tend to destroy the vitamin in these foodstuffs. Until recently this problem seemed very simple. The subject was summed up by the statement that foods which have been dried, heated to a high degree, or canned, lose their vitamin content and induce scurvy. The ravages of scurvy in the mercantile marine and in the navy, in the days of the sailing vessel seemed a convincing demonstration of the deleterious effect of preserved food. The matter, however, is not so simple, and recent investigations have proved the fallacy of these generalizations. In regard to the effect of heat, it has been shown that the duration of the heating process is of greater importance than the degree of temperature to which the food is subjected. For example, milk that has been heated to a temperature of 145 F. for thirty minutes has lost more of its antiscorbutic potency than milk that has been raised to 212 F. for a few minutes. This result confirms clinical experience that scurvy occurs more frequently on a diet of pasteurized than on one of boiled milk. It has been shown also that the reaction of the medium is of importance in regard to resistance to heating—that substances which are acid, such as orange juice or tomato, retain their potency in spite of subjection to high temperatures.

Our views on the effect of the dehydration of foods have swung back and forth on insufficient evidence. For centuries it was known empirically that dried vegetables possessed practically no antiscorbutic virtue, as demonstrated in many wars, incluing our War of the Rebellion. Nevertheless, in the recent World War dried vegetables were again relied on as antiscorbutics. They proved to be the greatest cause of scurvy in the Central Empires. In this country the conception that dried vegetables are the nutritional equivalent of the fresh nearly led to their extended use and general adoption for our army. But although vegetables have not yet been dried by a process which enables them to retain their antiscorbutic vitamin, we must not infer that desiccation per se destroys this factor, as dried orange juice or tomato juice retains almost all of its antiscorbutic value. Nor is this resistance dependent solely on the acid reaction of these foods, for milk, dried by the Just roller process (by which it is subjected to 230 F. for a few seconds) loses little of its potency. Evidently, drying does not necessarily destroy the sensitive antiscorbutic factor.

We should also maintain an attitude of open-mindedness in regard to the effect of canning, commonly regarded as absolutely destructive of this vitamin. In general, this view is sound; but animal experiments as well as clinical tests have proved that this rule has exceptions—that tomatoes may be canned, and that milk may be both dried and canned, and yet preserve its antiscorbutic quality. Indeed, we found this to be true of dried milk which had been canned and kept for over a year at room temperature; an astonishing result, considering that such treatment involves subjection to almost all the influences commonly associated with the destruction of this vitamin—drying, heating to a temperature above the boiling point in a neutral or slightly alkaline medium, canning, and finally the deteriorating influence of age.[12] In view of these experiences, the statement of the British Medical Research Committee to the effect that foods lose their antiscorbutic vitamin after having been dried or tinned requires qualification. The stability of dried milk cannot be attributed, as we at first supposed, to its low moisture content (less than 3 per cent.), as sweetened condensed milk, containing more than three times as much water, was found also to retain the larger part of its antiscorbutic factor.

EFFECT OF OXIDATION

Such irregular and contradictory results suggested the action of some other destructive agent. We were led to believe that oxidation might be a harmful factor, and undertook experiments to investigate this question.

A Typical Test.—Four cubic centimeters of a normal solution of hydrogen peroxid was added to a liter of raw milk, which was then placed in the incubator over night. Eighty cubic centimeters per capita daily, in addition to oats and straw, was fed to a series of guinea-pigs. The animals promptly developed scurvy. Indeed, they manifested signs of this disorder as quickly as when fed milk that had been autoclaved for one hour at 115 C. Cure was accomplished by adding orange juice to the dietary. Evidently the antiscorbutic vitamin was almost completely destroyed by this small amount of hydrogen peroxid. Another experiment showed that orange juice subjected to oxygen had lost a definite degree of its potency, so that an increased quantity was required to cure scorbutic guinea-pigs.

These investigations indicate that oxidation destroys the antiscorbutic vitamin and must be considered in the etiology of scurvy.[13]

Let us in a few words reconsider the antiscorbutic value of milk from this point of view. Dried milk may retain its antiscorbutic virtue, in spite of drying, canning and aging, owing to the fact that it is well packed and hermetically sealed. It loses its potency after it is exposed to the air. When we refer to the deleterious effect of aging—a vague term—we may well be alluding to oxidation. Sweetened condensed milk, which we found to contain antiscorbutic vitamin,

12. In this respect, however, it should be borne in mind that there is an essential difference between a food which is of an alkaline or neutral reaction in its natural state, and one which has been rendered so artificially; for instance, orange juice rapidly loses its antiscorbutic vitamin after it has been made faintly alkaline, whereas the potato, in spite of its natural alkaline medium, retains this vitamin throughout the winter.

13. These results were referred to in a discussion of the vitamins at the meeting of the British Medical Association (Cambridge, July 1, 1920). At this session Hopkins also reported that the fat-soluble vitamin is destroyed by oxidation.

is zealously protected from access of air in the course of its manufacture, not for fear of oxidation or destruction of any of its food constituents, but to avoid the danger of bacterial contamination. It is probable that oxidation plays a rôle in the partial destruction of this vitamin in the pasteurization of milk; this seems the explanation of an experience referred to in 1915: the decided difference in the production of scurvy between milk which had been pasteurized in the home and that which had been pasteurized commercially. It may also account for the clinical results of Variot and others, who have repeatedly stated that they fed thousands, indeed, tens of thousands of infants on sterilized milk, and never encountered cases of scurvy; their milk was sterilized in hermetically sealed bottles. Bearing the factor of oxidation in mind may make it possible to so alter the process of manufacture or of the preservation of foods as to increase their antiscorbutic content, and render them more nearly the equivalent of the fresh food.

The deleterious influence of apparently unimportant processes in industrial methods warns us to proceed cautiously in the handling of foods, and not to concentrate our attention too narrowly on the bacterial dangers, for even some slight mechanical manipulation may damage and denature.

RICKETS

We are all aware of a renewed interest in another nutritional disorder affecting primarily the health of children, namely, rickets. This awakening closely followed the recent activity in the study of scurvy—always regarded as a closely allied disorder—and has been further stimulated by the remarkable outbreaks of rickets and osteomalacia in the Central Empires. Today we find clinicians and laboratory investigators in England, Germany, Austria and the United States endeavoring to shed light on the etiology of this disorder, which Glisson described so vividly more than 250 years ago. Rickets is the most common nutritional disease occurring among the children of the temperate zone, fully three fourths of the infants in the great cities, such as New York, showing rachitic signs in some degree. Schmorl's pathologic studies present evidence that this percentage is still higher when we include cases of latent rickets which can be diagnosed only by the microscope. Furthermore, rickets has the distinction of being the most frequently overlooked disorder of childhood—an important omission, in view of the fact that we possess an efficient agent for its cure.

Broadly considered, there are two main theories as to the etiology of rickets: the dietetic and the hygienic. It would lead too far afield to discuss the respective merits of these theories. It is my opinion that rickets is primarily a dietetic disorder, but that hygienic factors, such as lack of sunlight, poor ventilation, crowded quarters, and infection, are important contributory influences, far more important than in the case of scurvy. That climate is not the determining etiologic factor is amply proved by the recent experiences of Europe, where rickets developed during the war in almost epidemic form. For example, Dalyell[14] reported from Vienna that, in one community which included many breast-fed infants, rickets was diagnosed in 50 per cent. of the infants at 5 months, and in 100 per cent. at 9 months of age. Davidsohn[15] has emphasized the great increase of severe cases in Berlin during the year following the armistice. This increment occurred despite the fact, shown by an analysis of some thousands of cases, that at the beginning of the war 40 per cent. of the babies were nursed for more than two months, whereas in 1918 more than 50 per cent. were nursed for a similar period.

I believe that I may safely state that today attention is centered on the rôle of the vitamins in relation to the etiology of rickets, and specifically on the fat-soluble vitamin. As the result of the investigation of Mellanby on dogs and the acceptance of his results by the Medical Research Committee of Great Britain, many regard it as an established fact that the fat-soluble vitamin is synonymous with the antirachitic vitamin. About a year ago Dr. Under and I expressed the opinion that although this vitamin may be a factor in the etiology of rickets, it is not the dominant factor in its pathogenesis.[16] The conclusion was based on a clinical study carried out in an institution for children. As this theory of etiology is the paramount one at the present time, I shall waive other aspects and discuss it in the light of my experience, which embraces a period of two and a half years, and a careful observation of about 150 cases. My opportunity for a clinical study has been exceptional, as the children were in a model institution, where the diet was prepared in a central kitchen, and all the conditions were uniform and capable of control. Furthermore, I was sure that the infants received a diet adequate in calories and in other food factors. It is only under similar conditions that studies on chronic nutritional disorders can be carried out.

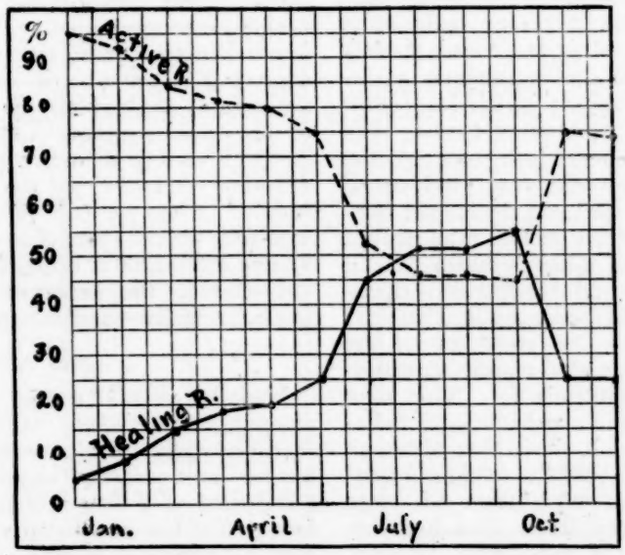


Chart 1.—Result of microscopic study of the bones of 386 consecutive necropsies on infants: marked decrease of active rickets accompanied by marked increase of healing rickets during the summer months.

Time will not allow a detailed review of these observations, which will be reported at another time. It may, however, be of interest to summarize the results of two groups of cases, one which received a "fat-soluble minimal" diet and the other a full quota of

14. Dalyell, E. J.: The Present Position of the Vitamines in Clinical Medicine, Brit. M. J., July 31, 1920.
15. Davidsohn, H.: Die Wirkung der Aushungerung Deutschlands auf die Berliner Kinder, Ztschr. f. Kinderh. 21: 349, 1919.
16. Hess, A. F., and Unger, L. J.: The Clinical Rôle of the Fat soluble Vitamin: Its Relation to Rickets, J. A. M. A. 74: 217 (Jan. 24) 1920.

milk.[17] Among six infants who were given a diet which was generous in every respect excepting in fat-soluble vitamin, a diet comprising adequate colorific value, a full amount of the water-soluble and antiscorbutic vitamins, and an adequate salt mixture, after a period of more than six months only one showed rachitic signs by physical examination or by the roentgen ray. For, as many no doubt know, the course of this disorder can be studied by means of roentgenograms, and its development or cure thus visualized. Roentgenography, which has been employed extensively abroad, and by Phemister [18] and by Howland and Park [19] in this country, has formed part of our monthly routine examination for the last year.[20] This procedure has great value in the investigation of rickets, and no doubt will aid in elucidating some of its perplexities. As stated, one of these six infants receiving a minimal amount of fat-soluble vitamin in the dietary—only so much as was included in the equivalent of 20 ounces of a dried skimmed milk—showed signs of rickets after a long period of observation. In one case, which was observed for eighteen months, rickets existed at the onset and disappeared on this diet.

At the same time the development of rickets was followed in infants who were receiving daily from 24 to 32 ounces of raw or pasteurized milk. Surely this amount should suffice to protect against a disorder, were its occurrence dependent on the fat-soluble vitamin. Among this group, numbering twelve, who were receiving a dietary rendered adequate by the addition of orange juice, autolyzed yeast and cereal (for babies over 6 months of age), six developed rickets. That this disorder was truly rickets was proved by its rapid subsidence on the administration of cod liver oil, as shown by physical and roentgen-ray examination. The inference would seem to be that cod liver oil, which is regarded as the prototype of the fat-soluble vitamin, must differ not merely quantitatively but also qualitatively from milk fat. This view is strengthened by metabolism experiments of Schabad, Orgler [21] and others, which show that although cod liver oil almost invariably causes calcium retention in cases of rickets, the substitution of large amounts of milk in the dietary leads to a negative calcium balance. Evidently the fat-soluble vitamin, as it exists in milk, is not the antirachitic factor; neither will a large amount of milk protect against rickets, nor a small amount lead to its development.

In passing, it may be of interest to refer to an investigation of the diet of the negro mother carried out a few years ago by Dr. Unger and myself [22] in a negro district of New York. As is well known, rickets is far more frequent among negro infants in the large cities of the North than among those of any other race, occurring in marked degree in fully one third that are breast-fed. We came to the conclusion that the main defect and the chief variation in the dietary, compared to what they had been accustomed to at home in the West Indies, was a lack of fresh vegetables and fruits, and an excess of carbohydrates. Last spring and fall Dr. Gertrude McCann carried out a similar investigation in this district and came to the same conclusion. This deficiency of fresh vegetable food, accompanied by a high incidence of rickets, is worth noting.

THE EFFECT OF "SEASON"

A remarkable phenomenon noted by Kassowitz years ago, and one which has not been sufficiently emphasized, is the marked seasonal incidence of rickets; its increased occurrence and intensity in the spring, and tendency to fall to its lowest level in the late summer or autumn. In the course of two years' observations, this fact stood out both winter and summer in bold relief; in August and September, rickets almost disappeared in the institution. Not only the clinician, but also the pathologist, is well aware of this seasonal augmentation and diminution; Schmorl's [23] study of some 386 cases brings it out admirably. So definite is this occurrence that any theory which attempts to explain rickets must satisfactorily interpret this remarkable seasonal variation in its incidence. Pellagra, tetany, keratomalacia, and to a less extent beriberi, are associated with a similar variation. The marked increment of rickets in the spring was attributed by Kassowitz to prolonged indoor confinement of the infants throughout the winter, and was the basis of his "domestication" theory. It may, however, be due to a change in diet not that the infants are given different food, but that the milk in the late spring and summer, when the cows are on pasture and no longer stall-fed, differs from that of the winter. The nature of this difference is obscure. This interpretation does not exclude the beneficent effect of the improved hygienic conditions which come about in the late spring.

COD LIVER OIL

Happily, we have a drug which, if given in sufficient amount, cures rickets. Cod liver oil has been used therapeutically for almost 100 years, but even today it has not been accorded its proper place in therapy. It is recognized as a drug which benefits nutrition, but the fact that it has unequaled value in the prevention and cure of rickets is hardly realized. Some three years ago a study of the effect of cod liver oil on negro children in a district of New York showed that it was of decided value in 80 per cent. of the cases. This test was carried out during the winter and early spring. Since this time, roentgen-ray examinations month by month in a series of cases have shown objectively the benefit of this therapeutic agent. It is quite remarkable how rapid is the deposition of calcium under this treatment.

It is possible to rid New York, or any locality, of rickets by means of the use of cod liver oil. There are approximately 125,000 children in New York City between the ages of 3 and 15 months, the period of greatest susceptibility to rickets. If we estimate generously that the families of one third to one quarter of these children are unable to purchase cod liver oil, and if we agree that the development of rickets may be prevented by giving a teaspoonful three times a day, then, at the present cost, rickets could be practically abolished in this city by the expenditure of about $100,000 a year. This is merely one of many instances in which the community does not get the full benefit

17. The "fat-soluble minimal" diet consisted of 60 gm. of dried skimmed milk, 30 gm. of sucrose, 30 c.c. of cottonseed oil, orange juice, autolyzed yeast and wheat cereal. In some cases the oil was discontinued for over six months, and an increased quantity of cereal substituted.

18. Phemister, D. B.: The Effect of Phosphorus on Growing, Normal and Diseased Bones, J. A. M. A. **70**: 1737 (June 8) 1918.

19. Howland, J., and Park, S. A.: Some Observations on Rickets, Arch. Pediat. **37**: 411, 1920.

20. Hess, A. F., and Unger, L. J.: Dietaries of Infants in Relation to the Development of Rickets, Proc. Soc. Exper. Biol. & Med. **17**: 220, 1920.

21. Orgler, A.: Zur Theorie der Lebertranwirkung, Jahrb. f. Kinderh. **37**: 459, 1918.

22. Hess, A. F., and Unger, L. J.: The Diet of the Negro Mother in New York City, J. A. M. A. **70**: 900 (March 30) 1918.

23. Schmorl, G.: Die pathologische Anatomie der rachitischen Knochenerkrankung, Ergebn. d. inn. Med. u. Kinderh. **13**: 403, 1914.

of our medical knowledge. A similar example exists in connection with the prevention of beriberi. As is well known, this disease is the main factor in the exceedingly high infant mortality in the Philippines, leading to a death rate in the city of Manila of 430 out of every thousand infants under 1 year of age. The preventive of beriberi is the water-soluble vitamin, which is furnished in high concentration in brewers' yeast, a by-product of the brewing industry. Yet this high mortality is allowed to continue unabated in spite of the fact that the country is under a stable, civilized government.

MALNUTRITION NOT TYPICAL DISEASE

The harmful effects of food deficiencies should not be associated in our minds essentially or chiefly with specific diseases such as scurvy or rickets, but rather as disorders of nutrition producing slight and manifold disturbances of function. This is probably quite as true of rachitic as of scorbutic malnutrition. It is probable that every organ or system in the body may be affected by faulty nutrition, so that the deficiency diseases must engage the attention of every physician, whatever his particular interest or specialty. For example, involvement of the eyes may lead to impaired vision or night-blindness; or, on the other hand, neuritis, cardiac enlargement, disturbances of the circulatory system, atrophic disorders of the skin, nails or hair, caries of the teeth, or unaccountable lack of appetite and constipation, may each in turn be the earliest symptom. A more careful inquiry into the dietary of patients will result in bringing to light many cases in which vague and ill defined symptoms can be remedied simply by rendering the diet adequate.

Case	Without C. L. Oil	With C. L. Oil
1	+0.060	+0.175 +0.141
2	−0.014	+0.143 +0.519
3	+0.073	+0.303
4	−0.038	−0.285 +0.141 +0.108
5	+0.067	+0.465

Case	Low Milk Fat	High Milk Fat
6	+0.137	−0.198
7	+0.038	−0.034
8	+0.043	−0.120
9	+0.037	−0.267

Chart 2.—An aspect of the calcium metabolism in rickets. The favorable effect of cod liver oil on the calcium balance and the unfavorable effect of an abundance of milk-fat.

The fat-soluble vitamin has been termed the "growth-vitamin." The designation is unfortunate, not only because this vitamin cannot be credited with this specific faculty, but also because no single food constituent deserves such distinction, or is endowed with this all-important function. It is probably true that if the fat-soluble vitamin is deficient, growth will not progress normally. This is certainly the case with rats, which are particularly sensitive to a lack of this vitamin, but which require a very small amount to render their diet adequate. Similar observations have not, however, been made on infants, so that we do not know, even approximately, how much fat-soluble vitamin food is needed for normal growth. The stunting effect of a lack of antiscorbutic vitamin on infants has been definitely shown, so that with equal justice this might be termed the growth vitamin. The sounder physiologic view, however, would be to regard no food constituent as entitled to be styled the growth vitamin or factor. If an essential amino-acid, vitamin or inorganic salt is lacking in the dietary, this inadquate factor—whatever its chemical nature—must be regarded as and will prove to be the growth factor. In other words, for adequate growth the diet must be complete; and when it is incomplete—whatever the nature of the inadequacy, or however minimal its amount—growth will suffer.

INTERRELATIONSHIP OF NUTRITION AND INFECTION

Studies of the deficiency diseases have served to illustrate in a most convincing manner the intimate relationship of nutrition to infection, and have led to our attributing increased significance to the former. Indeed, the chief clinical importance of disorders of nutrition seems to be associated with the fact that they bring about an abnormal condition of the tissues which renders them more susceptible to the invasion of bacteria or their products. This relationship was exemplified in 1913, when, as the result of a dietary of pasteurized milk, latent scurvy developed among a group of infants under our care. This "scorbutic taint" was followed by a widespread grip infection, with hemorrhagic skin manifestations, which disappeared on the administration of orange juice. For some years I was uncertain how to interpret this peculiar clinical picture, whether to regard the epidemic as due to scurvy or to infection. As the result of subsequent experience I realized that it was due to both causes, the result of a primary nutritional disturbance and a secondary bacterial invasion. Another illustration of the interrelationship of disordered nutrition and infection is furnished by the frequent coincidence of nasal diphtheria and latent or subacute scurvy. This concurrence is so suggestive that when a large number of cases of nasal diphtheria develop, suspicion should be aroused that the infection was implanted on tissues rendered susceptible by scorbutic or other nutritional disorder. This view holds true for animals as well as for man. Veterinarians and farmers are well aware that faulty nutrition leads to fatal infections. The so-called "snuffles" of hogs is recognized as a disorder of this twofold nature. It is probable that plants which have been poorly nourished, owing to an inadequacy of the soil, also react by diminished resistance, and that this is a factor in the infectious diseases of plant life. This "nutritional-infectious" aspect has been convincingly illustrated on a large scale among the peoples of the Central Empires, who during the many years of the war suffered from various forms of malnutrition. The general impairment of health was most strikingly manifested both in adults and in children by the great spread of tuberculosis and its increased mortality. Davidsohn [15] has reported that in Berlin there was a marked increase in infection with tubercle bacilli in children under the age of 5 years, and that they had been infected earlier in life than formerly; whereas in 1913, 30 per cent. gave a positive

reaction at 4½ years, in 1919 this percentage was reached at 2½ years. The mortality of children from tuberculosis showed a similar difference in the year previous to the war compared to that of the year succeeding the armistice, the figures being thirty-two as compared to about forty-eight deaths among children under 6 years of age, on the basis of 10,000 living individuals.

Clinical investigations in the domain of the deficiency diseases have, as a rule, differed essentially from laboratory experiments. The latter, if accurately planned and correctly executed, study but one deficiency at a time; whereas the clinician investigating the dietary inadequacies of an individual or of a group, is necessarily confronted by a lack of more than one food factor. For example, an analysis of the cases of xerophthalmia or keratomalacia—a disorder ascribed to a lack of the fat-soluble vitamin—reported by Block of Copenhagen shows that many of the infants were receiving an insufficient quota not only of this vitamin but also of the antiscorbutic vitamin and of caloric food equivalents. Furthermore, in many localities where there was prolonged subnutrition during the recent war, there was a lack of vitamin, of adequate salts, of other essential substances and of calories. This confusion renders it impossible to unravel the clinical phenomena or to assign the various food factors their respective rôles. This criticism applies to the study of war or hunger edema which in 1917 spread through Poland and other countries, and which probably was the result of partial starvation combined with an unbalanced diet.[24] For this reason it is questionable whether we shall derive much increased knowledge from subsequent detailed reports concerning this vast experience of human suffering. On the other hand, a great deal will be learned in the future from clinical studies of nutrition when the diets are carefully controlled so that the results are capable of exact interpretation. We may expect such investigations to be undertaken more frequently and more intensively than heretofore.

On the other hand, for the laboratory worker there is the temptation to draw sweeping deductions from animal experiments, and to apply them *en masse* to the deficiency diseases of man. It should be remembered that the results of animal experiments are provisional and require the confirmation of clinical experience. Only too often has it been found that laboratory conclusions which at the time seemed open to but one interpretation were later explained by unsuspected and entirely different factors. The pitfalls in dietary experiments on animals are especially numerous on account of the varying reactions of the different species, and because the artificial diet—in spite of the greatest care—may be incomplete in more than one particular. In vitamin experiments there is especial danger of attributing failure of growth and nutrition solely to a deficiency of this factor, on which the attention of the investigator is focused, taking it for granted that the dietary is adequate beyond question in salts, protein and all other constituents. It is quite possible that this inconsistency will be found to invalidate some experiments that have seemed conclusive.

The disorders of nutrition have always presented a preeminent opportunity for collaboration between the laboratory and the clinic. It will be remembered that at one time the conception of rickets embraced a motley crew—congenital syphilis, scurvy, true rickets, achondroplasia and osteopsathyrosis, and that one by one these diseases were differentiated by the combined investigation of laboratory worker and clinician. The same opportunity exists today. The group of deficiency diseases furnishes urgent problems for the chemist, for the experimental biologist, the pathologic anatomist, the roentgenographer, and last, but above all, for the trained clinician. The subject is so complex that advance will be along various paths, each worker furthering and checking the work of the other, so that progress may not leap beyond the bounds of well-founded experimental or clinical evidence.

16 West Eighty-Sixth Street.

24. The experiences in the Central Empires during the war render it improbable that pellagra is due merely to a lack of adequate protein. Adequate protein was lacking to a marked degree — milk, cheese, eggs, meat were all unavailable. Nevertheless there was no prevalence of pellagra throughout these years.

ARTERIOSCLEROSIS AND CARDIOVASCULAR DISEASE

THEIR RELATION TO INFECTIOUS DISEASES *

WILLIAM OPHÜLS, M.D.
SAN FRANCISCO

The two conditions mentioned in the title of this résumé, one characterized by certain anatomic lesions and the other a clinical syndrome, are closely related to each other, but by no means identical. It is well known that we may find severe chronic lesions in the arteries without the usual symptoms of cardiovascular disease, and that there are cases of cardiovascular disease practically free from all demonstrable arterial lesions. In the majority of instances both occur simultaneously in varying combination, the exact relation of one to the other not being clearly understood.

It is surmised that the ultimate cause of both conditions is to be found in certain chronic intoxications, the nature of which is still doubtful, although it has been suggested that in the development of these intoxications infectious diseases may play some rôle. In order to determine the latter point, considerable experimental work has been done with bacteria and bacterial toxins on animals; but although suggestive, none of it is thoroughly convincing.

Again, it has been pointed out that certain infectious diseases are likely to involve the arteries acutely, and from this the conclusion has been drawn that they might also be concerned in the production of chronic disease in them. Rheumatic infections and typhoid fever have been most prominently mentioned in this connection, and occasional infections of the arteries have been credited to pneumococci, gonococci and other bacteria. At the same time the lesions produced in the arteries by diphtheria toxin have been carefully studied in man and animals. Tuberculosis and syphilis have also received considerable attention as possible causes of arterial disease.

No altogether acceptable proof, however, has been furnished of this suspected interrelation between certain infectious diseases and the later development of arteriosclerosis or of the syndrome of cardiovascular disease.

It seemed possible to throw light on this subject by a careful study of a series of cases which had been investigated as thoroughly as possible from a clinical

* From the Pathological Laboratory of the Leland Stanford Junior University School of Medicine.

and from an anatomic point of view, and 500 consecutive complete necropsies from our records were selected for this purpose.

The possible existence of preceding infections in these cases was determined both by the clinical histories and by careful anatomic study, the latter being directed especially toward the discovery of old inflammatory lesions in the tonsils, heart valves and other known foci of chronic infection.

A comparison was made of those cases in which all history or signs of previous infection were absent and those in which such had been detected, with the very striking result that chronic arterial disease was almost entirely lacking in the first group, and made its appearance early and very frequently in the second group. Furthermore, it became evident that this connection does not exist in all infectious diseases, but is fairly well limited to chronic rheumatic (septic) conditions. The second group also includes all cases of hypertension and all cases of nephritis in which there was an adequate history.

The injury to the arteries usually occurs early in life, and the anatomic lesions seem to develop very slowly and progressively, even after the original infection has become extinct.

According to our figures, arteriosclerosis and associated conditions are very rare in chronic pulmonary tuberculosis, and even in syphilis they do not seem to occur very commonly, especially if one deducts those cases in which a chronic rheumatic infection was present in addition to syphilis. True syphilitic disease of the aorta and of the cerebral arteries has naturally been disregarded in this statement.

Our investigation again brought out strikingly that there is no direct relation between the extent and severity of the arterial disease and the amount of functional disturbance in the cardiovascular system. The special involvement of certain vascular territories like that of the kidneys also did not seem to be of any particular importance in this connection. Arteriosclerosis and hypertension are therefore rather loosely associated phenomena, possibly connected with each other by their common relation to certain infections, which at times may produce merely a severe functional reaction on the part of the arteries, at times marked anatomic lesions in them, or both severe lesions and marked functional derangement.

According to the organs principally involved, the cases may be segregated into several groups: those with prevailing involvement of the cerebral vessels, those with marked lesions of the coronary arteries and of the myocardium, those with severe renal lesions and, lastly, those with endarteritis in the stomach and duodenum followed by chronic ulceration. There are many mixed cases, however.

Severe lesions of the coronary arteries and of the myocardium naturally cause marked disturbances in the function of the heart. From our material it has been impossible to determine exactly how far minor lesions of this kind are of functional importance.

The usual result of severe arteriosclerosis of the cerebral arteries was either softening of the brain or hemorrhage. The latter, of course, was more commonly seen in patients with hypertension.

The only really tangible connection between arteriosclerosis and chronic nephritis seems to be their common etiology, their interrelation in this regard being very similar to that between arteriosclerosis and hypertension. Even if one should not be ready to believe that this common cause of both arteriosclerosis and nephritis has been found in chronic septic (rheumatic) processes, as I am inclined to think, a connection of this kind is the only one which agrees with the observed facts and explains satisfactorily the frequent coincidence of the two diseases and their otherwise puzzling relation to each other. The whole intricate problem becomes very simple, if we look on these two conditions as the result of the action of complex toxic bodies which may affect the arteries more or less severely or the kidneys or both as the case may be, and if we give up once for all the idea that arterial disease as such may produce nephritis or, vice versa, that nephritis may produce the arterial disease. Even under this assumption, it is quite readily understood why, as usually happens in nephritis, the local process in the kidneys should favor an especially severe involvement of the renal arteries.

As one should expect under these circumstances, a careful study of our material reveals an uninterrupted series of cases, beginning with those with severe involvement of the arteries and little disease of the kidney, and ending with those with severe usually more acute forms of nephritis and little arterial disease.

From a functional point of view, the intermediate cases with marked involvement of arteries and kidneys are particularly interesting and are the ones which give rise to so much difficulty in interpretation and classification, both from the point of view of the clinician and from that of the pathologic anatomist. If what has been said is true, any attempt at a too narrow or one-sided treatment of this group is doomed to failure.

NOTE.—A more extensive article embodying the details of this investigation will appear shortly under the same title from the Stanford University Press.

THE FUNCTIONS AND SCOPE OF AN INDUSTRIAL CLINIC IN A GENERAL HOSPITAL

HARRY LINENTHAL, M.D.
Physician to Outpatients, Massachusetts General Hospital; Instructor in Industrial Medicine, Medical School of Harvard University
BOSTON

With the recently awakened and rapidly progressing interest in the relation of industry to health, the problem is being studied from many different angles by an ever-increasing circle of investigators and workers. Employers and employment managers, welfare workers, social workers, industrial nurses, industrial physicians and research workers, all are directing attention to the problem of the health hazards in industry; how to conserve the health of the worker, and how to restore him to productive efficiency when injury or ill health has occurred.

The industrial clinic is one of the most important and effective single factors in this widespread movement. There are several types of such clinics, each one handling the issue from a somewhat different point of view with different set problems before it. Some clinics are operated in large manufacturing establishments to render aid to the employees of the particular establishments. Other industrial clinics are conducted outside the manufacturing establishments either by the manufacturer, or on a cooperative basis by employers and employees, or by municipalities, where all workers may apply for medical treatment irrespective of

whether the state of ill health from which they are suffering is the result of their work or any other cause.

Still another type of industrial clinic, one which I am about to describe in detail, is that connected with a general hospital, such as the industrial clinic of the Massachusetts General Hospital.

FUNCTION OF THE INDUSTRIAL CLINIC

What precisely is the function of the industrial clinic of the Massachusetts General Hospital? What are its problems? What, its relations to the other clinics in the hospital? These are all questions frequently asked by physicians and laymen interested in this particular clinic.

At first glance it might seem that an industrial clinic would be an unnecessary adjunct in a hospital like the Massachusetts General Hospital with its well organized, efficiently conducted medical and surgical clinics, and clinics attended to by experts in the great variety of specialties.

Physicians in general, however, have little or no familiarity with industrial processes or conditions, and as a rule have little interest in them. The industrial clinic can thus be of help to them by pointing out the etiologic factors in industry responsible for certain pathologic states which would otherwise remain obscure and unrecognized. This bringing to light of the etiologic factors which exist in the health hazard to which a patient may be exposed at his work and which is wholly or partly responsible for the symptoms for which he presents himself for treatment is the chief function of the industrial clinic.

Moreover, cases of industrial disease present many problems which do not arise in the treatment of the ordinary patient. Should the patient return to the same job after a cure has taken place and, if so, what precautions against subsequent exposure to the hazard must be undertaken? When can the patient with safety resume his work? Should his work be changed? Is the disease or injury one for which the patient is entitled to compensation? Is the condition one that is reportable to state authorities? And there are many other questions that are foreign to other patients in the clinic.

It is, therefore, necessary that a person suffering from ill health resulting from industrial conditions be registered and followed up by a clinic interested and competent to deal with the case in all its social and industrial ramifications. The patient should be referred to other clinics only when special treatment is necessary.

Moreover, as has been pointed out by Dr. Edsall [1] in a recent paper on the functions of an industrial clinic in a general hospital, such a clinic permits of grouping of cases and, by frequent repetition of observations in the same class of workers, suggests new problems. It also permits the analysis of accumulated records and inferences as to the effects of certain occupations, and may thus increase our knowledge of the effects of occupation on health. Other functions for an industrial clinic, Dr. Edsall further points out, are the training of students in this comparatively new field of hygiene, the investigation of problems in industrial disease, and the bringing about of changes in industrial establishments so as to make hazardous processes safer.

Moreover, there is no agency at present in the community that is as capable as is the industrial clinic, with the aid of the other special clinics in the hospital enabling group diagnosis, of handling the problems that arise in connection with those crippled or made ill by industry. No agency is so well equipped and able to correlate occupations with the physical condition of the worker and thus serve as a reliable and accurate source of vocational guidance to those incapacitated by industry.

Finally, it may be pointed out that an industrial clinic, with its group of physicians and social workers trained in industrial problems, brings the hospital in closer contact with social and economic conditions outside the hospital walls than is possible for any other clinic, and thus furnishes an avenue for aggressive work on the part of the hospital beyond its walls for the prevention of disease and for the betterment of social conditions.

THE INDUSTRIAL CLINIC AT THE MASSACHUSETTS GENERAL HOSPITAL

Edsall and Wright [2] have given a detailed description of the workings of the industrial clinic at the Massachusetts General Hospital. For the benefit of those who are not familiar with the workings of the clinic, a brief summary of its operation may be of interest.

A worker at the admission desk is instructed to inquire carefully as to the occupations of those who apply for admission. Not only is the general industry in which the patient is employed recorded, but also the particular occupation in which the patient is engaged, and the length of time he has spent in that occupation. Every patient employed in any workshop, mill or factory is sent to the industrial clinic before he is sent to the clinic to which he is assigned for treatment. At the industrial clinic the patient is interviewed to ascertain whether there is any probable relation between his work and the symptoms for which he applies for treatment. If the patient's complaints are evidently not due to his work, he is sent to the clinic to which he is assigned. If, however, there is a relation between the industrial hazard and the patient's ill health, he is registered in the industrial clinic and the case is followed up.

Should the patient require treatment in a special clinic, he is referred there for treatment of the special condition.

The following group of cases selected from the records of the industrial clinic will illustrate the frequent industrial etiology of ailments not usually regarded as of specific industrial origin.

SKIN DISEASES

Case 1.—A girl, aged 16, came to the skin clinic, complaining of itching and irritation of her hands of two weeks' duration. The skin on both hands and arms was red, infiltrated, scaling and pruritic. The condition was diagnosed as "dermatitis venenata."

The patient had worked for one year as dipper in a chocolate factory. The work of a chocolate dipper consists in taking the filling and dipping it in a tray of melted chocolate. In the process, the hands of the dipper are bathed continually in the semiliquid chocolate mass. Curiously enough, this insanitary and uncleanly way of handling the candy is confined to the higher grades of chocolates. The cheaper chocolates are dipped in a cleanly way by machine. Machine dipping, however, produces a uniform, smooth surface. To satisfy our esthetic sense, the better grade chocolates are served to us with a little decoration or frill on the surface, and cleanliness and sanitation are thus sacrificed on the altar of art. The skin condition for which this patient seeks relief is a common affliction among chocolate dippers, and is pro-

1. Edsall, D. L.: Industrial Clinics in General Hospital, J. Indust. Hyg. 1: 394 (Dec.) 1919.

2. Edsall and Wright: Monthly Review of Bureau of Labor Statistics, U. S. Department of Labor, December, 1917.

duced by the irritation caused by the constant dipping of the hands in the molten chocolate.

CASE 2.—A man, aged 38, came to the skin clinic with the skin of both hands and arms red and oozing, with many excoriations and intense itching. He worked in a paint shop; his job consisted in cleaning the tanks in which the colors are ground. He used a hot potash solution in cleaning the tanks. He wore a rubber glove at his work, but his arms were not protected. His trouble started four months previously when he burned a small area on his hand with the potash solution, which was too hot. The irritation of his skin grew progressively worse until he had to give up his work.

CASE 3.—A man, aged 37, came to the skin clinic with an extensive papular and vesicular eruption, confluent in parts, distributed over his right arm, the right side of his body, and the right buttock. In places the skin was red and swollen with vesiculation. The patient mixed stains in a paint factory. The solutions of the stains and dyes that he used were hot. Frequently to remove stains from his hands he washed them with benzene (benzol). His skin condition was thus clearly the result of these irritating substances.

CASE 4.—A man, aged 29, came for relief of a skin condition. His hands showed several dull red and crusted patches. In several places there were deep, oozing fissures. The patient had worked for the last two months as a dish washer in a lunch room. He worked nine hours daily, and during his entire working hours he had his hands in hot water with a strong soap powder in it. Trouble with his hands started about one month after he started his work, and had been growing progressively worse.

The types of diseases of the skin resulting from industrial conditions present a great variety. They are due to either thermal, mechanical or chemical irritants. The susceptibility to skin disease from the injurious agents varies not only with such factors as the structure of the skin, whether tough or delicate, the condition of the circulation, the degree of moisture, etc., but also with unknown factors which are included in the general term of "individual susceptibility." These unknown factors determine the occurrence of skin disease in some, while not affecting others engaged in similar work, and also determine the development of skin disease in persons who may have been exposed to the same conditions for long periods of time without any injurious effects.

RESPIRATORY DISEASES

That exposure for long periods to inhalation of dust is injurious to the lungs is well known, and it is also a well recognized fact that certain industries, because of their dust hazards, have an unusually high mortality from respiratory diseases.

Not all dusts, however, produce the same reaction in the lung tissue. Some dusts produce permanent injury to the lung tissue, replacing it with connective tissue and producing fibrosis of the lung; other dusts are comparatively harmless, since they do not produce any fibrous changes in the lungs. But the so-called harmless dusts owe their innocuousness to the catarrhal condition which they cause in the respiratory mucous membrane. The particles of dusts are taken up by phagocytic cells and are expectorated. The experimental work of Haldane and of Mavrogardato has demonstrated the somewhat paradoxical condition that the dusts which produce a catarrhal condition of respiratory mucous membrane are the harmless dusts. The very catarrh which they set up is the means by which the lung clears itself of the dust. The dangerous dusts, on the other hand, produce no catarrh. The particles are taken up by the fixed cells, remain in the lung tissue, and gradually lead to a pulmonary fibrosis.

There is much yet to be done to estimate the effects of the various kinds of dusts. Even the so-called harmless dusts, such as coal dust, can hardly be considered harmless if they constantly keep the mucous membranes in a catarrhal condition. It is true that these dusts do not cause a fibrosis, but they do render those exposed to them more susceptible to acute pulmonary infection. This was clearly shown in Dublin's statistics of the high mortality among coal miners from influenza during the recent epidemics. The following cases illustrate the types of respiratory diseases seen in the industrial clinic, which are produced by the dust hazard of the industry:

CASE 5.—A man, aged 43, complained of gradually increasing dyspnea, which had become worse during the last four months. He had no cough. A roentgenogram of the chest revealed diffuse, fine mottled shadows, with larger, irregular areas of increased density in both lungs. The man had been a stone cutter for twenty-seven years, and had been exposed to a great deal of granite dust. The roentgen-ray picture was characteristic of fibrosis. The disease is characterized by its insidious onset and slowly progressive dyspnea, and is frequently not associated with any cough. It is only after infection sets in that the patient begins to cough and raise considerable sputum, and the clinical picture may become that of advanced pulmonary tuberculosis.

CASE 6.—A man, aged 52, complained of gradually and progressively increasing dyspnea and considerable nonproductive cough. He was a poorly nourished man with definite evidence of loss of subcutaneous fat. There was a foul metallic odor from his breath. There was some dulness over his right chest in back. A roentgenogram revealed a high diaphragm on the right side, and the respiratory movements were very much limited. The costophrenic angle was hazy. There was rather general dulness throughout both sides of the chest. The changes were most evident in the right upper lobe and along the course of the bronchi. There were also areas, particularly one near the heart apex, which suggested emphysematous lung. The root glands were only slightly enlarged, and there was no definite evidence of tuberculosis. The appearance was that of a diffuse fibrosis, such as is seen in chronic pneumoconiosis. An investigation of his industrial history revealed the fact that for three years he had been employed as a filer in a brass manufacturing plant. This work consists in filing off by hand the rough edges of brass castings. The amount of dust in this process is very slight. For nine years previous to the present work, however, he worked as a brass polisher and buffer. This work is done on rapidly revolving emery and cloth wheels. The wheels were not protected with any dust removal devices, so that for nine years this man was exposed to a great deal of emery and brass dust. The fibrosis of the lungs was thus the result of his prolonged and continuous dust exposure. The patient's condition now was such that he could not continue his work or take up any other work, as the slightest effort produced a very distressing dyspnea. The industrial accident board, to which this patient was referred, awarded him compensation of $4,000, which justly made the industry bear in a measure the burden of his incapacity.

CASE 7.—A man, aged 48, complained of cough, wheezing and dyspnea for one year. He tired easily and suffered from frequent headache. His appearance was that of a much older man. Physical examination was negative except for a hyperresonance of both chests, with many fine and coarse musical râles. For thirty years he had been a baker constantly working under poor sanitary conditions. For several years he had been working in a poorly ventilated cellar. The cellar was always smoky and dusty. He worked near ovens all the time, was exposed to great heat and, when he went out from this room, to sudden changes of temperature; he worked for nine hours at a stretch without any rest period.

Surely the conditions under which this patient had been working for thirty years were responsible for his chronic bronchitis, emphysema and general debility.

Exposure to irritating fumes frequently causes irritation of the respiratory mucous membranes, as shown by this case:

Case 8.—A man, aged 33, was referred from the Massachusetts Eye and Ear Infirmary for a general examination. He applied for treatment because of a conjunctivitis. He also had a constant irritating cough and an irritation of his nose and throat. His symptoms were of one month's duration and started shortly after he took up work in a chemical factory. His work consisted in pouring nitric and sulphuric acid into kettles. The symptoms promptly cleared up when he changed his job.

Case 9.—A man, aged 30, complained of cough and substernal soreness of several months' duration. His physical examination was negative except for occasional scattered râles throughout the chest. Roentgen-ray examination of the lungs was negative. He worked for several years as a cleaner of castings in a foundry. His work exposed him to a great deal of sand and metal dust. While bronchitis is a disease common enough in all walks of life, it is at least highly probable that the constant exposure to dust may have been an etiologic factor in this man's illness.

Exposure to extremes of temperature, to insanitary conditions and to vitiated air frequently cause more or less severe circulatory and digestive disturbances, as illustrated in these cases:

Case 10.—A man, aged 33, complained of sleeplessness, severe headaches and frequent dizzy spells. He had a burning sensation in his abdomen not related to meals and not associated with any digestive disturbances. The physical examination and the blood Wassermann test were negative. For seven years he worked as a dyer in a tannery. The work was very hard; there was a good deal of dust in the room from the hides. He was also exposed to excessive heat and excessive moisture, as the dyes are very hot. In the absence of findings in his physical examination to explain his symptoms and in the definite exposure to dust, excessive heat and moisture, it is fair to assume that his symptoms may have been of industrial origin.

Case 11.—A man, aged 26, complained of stomach trouble of one year's duration. He belched after meals, regurgitated his food, and had occasional attacks of vomiting with severe epigastric pain. He lost 14 pounds in two months. The patient was sent into the hospital for observation. Analysis of the gastric contents was negative. All laboratory work on the blood, urine and stool was negative. Roentgen-ray examination of the gastro-intestinal tract was negative, except for a moderate degree of ptosis and atony. While in the hospital his symptoms entirely cleared up and he rapidly gained in weight. The patient's work was that of punching holes in metal plates in a ship yard. He worked in a large room where there were from forty to fifty open coke furnaces, with no exhausts. The room was nearly always filled with smoke. In view of all the negative findings on physical, chemical and roentgen-ray examination, it seemed likely that this patient's constant exposure to an atmosphere vitiated by smoke and fumes of incomplete combustion might be sufficient to cause his gastric disturbance. The prompt subsidence of the symptoms after leaving his work confirmed this opinion. The patient, after leaving the hospital, changed his work and felt much better.

Case 12.—A man, aged 32, complained of feeling ill for three months. He had coughed considerably, but the cough did not trouble him as much as general weakness and attacks of dizziness. The dizziness became so troublesome that he had to give up his work. On examination, scattered râles were found in both lungs. The heart was negative, the blood pressure was normal, and the urine was negative. Blood examination revealed: hemoglobin, 80 per cent.; erythrocytes, 4,300,000; leukocytes, 7,000. The patient worked in a rubber factory on a cutting machine. The rubber was soft, and when he handled it particles stuck to his hands and face. To clean his hands and face he would wash them with benzene two or three times a day. For three months before he left his work he was put on a job which necessitated the spreading of benzene in the process of manufacture of rubber tires. He was at that work for two or three hours daily. This caused great dizziness and made him feel as if he were drunk. The onset of dizziness, associated with his exposure to benzene and with nothing on physical examination to otherwise explain his symptoms, suggests very strongly that this man was suffering from chronic benzene poisoning. The blood picture was not that of benzene poisoning which is associated with a leukopenia, but his exposure may not have been severe enough for that or his blood picture might have improved from the time he left his work till the time he came for examination, a period of three months.

Case 13.—A girl, aged 16, complained of frequent, severe headaches with some dizziness which usually came on during the afternoon. The physical examination, including the eyes and nasal sinuses, was negative. She was employed as a sticker in a shoe factory. Her work consisted in cementing leather strips used inside shoes. The cement was made of rubber dissolved in naphtha. An open bowl of this naphtha cement was in front of her. Many other girls in the room did similar work, so that the air in the work room was heavily charged with naphtha fumes. There was thus surely enough hazardous exposure at her work to explain all her symptoms.

OCCUPATION STRAINS

A large group of cases frequently encountered are those in which there is involvement of certain muscle groups or joints resulting from excessive physiologic function of the muscles and joints in question, or from prolonged postural strains necessitated by the patient's work. The classification and grouping of these cases is rather vague. They are diagnosed as occupational strains, occupation pain, occupation neuritis or occupational neurosis. There is thus no definite separation or grouping between the occupational strains due entirely to actual change in the muscles or terminal nerves, and the true occupational neuroses as typified by the so-called writer's cramp, in which there is an important functional element even if we accept the point of view of Dr. W. E. Paul that there are always neurolytic or myolitic changes produced by the constant stress of excessive physiologic functioning.

It is not at all uncommon in the inquiry into the neurosis cases to find that the patient engaged for many years in a certain line of work will, on the occurrence of some emotional disturbance, begin to experience the pains which may completely incapacitate him for the kind of work he has been engaged in for years. There is undoubtedly a psychic element which is at least the precipitating cause of the disturbance.

Case 14.—A woman, aged 30, who had worked as a paper box maker for twelve years, complained of progressively increasing pain and numbness in her hands, often going up to her arms. The pains were at times very severe, and she felt as if her arm was "being twisted off." She finally had to give up her work in the box factory because of the cramping of her fingers. Physical examination was entirely negative except for a slight tremor of both hands. Her work in the box factory consisted in feeding boxes to a machine. This involved constant use and fine motions of the thumb, index finger and middle finger of both hands. Her disability became progressively worse until she finally had to give up work. No history of any emotional disturbance could be obtained to explain the sudden onset of what was unmistakably an occupational neurosis in the patient, who has done the same work without any ill effect for twelve years. Her work was changed and her symptoms gradually cleared up entirely.

Case 15.—A woman, aged 24, complained of pain in the third finger of the right hand and also at the distal end of the third metacarpal. Examination revealed tenderness over the third metacarpophalangeal joint and over the distal end of the third metacarpal. There was considerable pain on full extension of fingers. Roentgen-ray examination of the hand was negative. The woman had been employed in a chocolate factory as a fancy decorator. Her work necessitated the

holding of a bag of molten chocolate weighing about 3 pounds; at the bottom of the bag was a small opening, and by the pressure of her hand the required amount of chocolate was squeezed out. Her work thus threw a constant strain on all the joints of her hand. A change of work relieved the condition.

CASE 16.—A man, aged 35, who had been employed as a sand-bobber in a silver-ware factory, had been engaged in cleaning hollow pieces of silver by a revolving wheel to which he had to feed a constant stream of fine sand. The process consisted in taking a handful of sand and by a slow rolling motion between the thumb and index and midle fingers allow the desired stream of sand to run through. This involved a very severe strain on the metacarpophalangeal joints of the index and middle fingers. He came to the hospital incapacitated to continue his work because of pain and swelling of these joints. Roentgen-ray examination did not detect any changes in the bone.

CASE 17.—A man, aged 30, complained of pain in the left shoulder and arm for one month. This pain had been getting progressively worse so that he had to give up his work. Examination disclosed tender areas over the left scapula and beneath the angle of the scapula produced by pressure and muscular contraction. He was a shoe polisher in a rubber shoe factory. About six pairs of rubber boots were hung on a bar. He applied polish to them and then had to lift the bar and boots and put them on a rack. The weight of the boots and bar was from 50 to 60 pounds. Most of the strain in this process was on the left arm. This operation, the patient estimated, was repeated about 1,000 times a day. His incapacity was therefore due to the muscle strain caused by his work. A conference with the nurse in the factory resulted in the patient's being put on a different job which did not involve the same muscle strain.

CONCLUSION

In citing cases from the records of the industrial clinic, those showing specific occupational diseases were intentionally omitted. We see a great many cases of lead poisoning and also occasionally those of arsenic, trinitrotoluene, anilin poisoning, and an occasional case of anthrax and other specific industrial disease. What I have attempted to show is that the great function of an industrial clinic is to trace the part industry plays in producing the more common diseases seen in all classes of the community.

If the effects of industry were only in the production of the specific occupational diseases, the problem would be comparatively easy and relatively unimportant: Easy, because the causal relation between the industrial condition and the resulting disease is manifest. Relatively unimportant, because the number of workers engaged in processes giving rise to specific industrial diseases are few in comparison with the vast army of workers exposed to less specific hazards of irritating dust or fumes, of localized fatigues, of insanitary conditions, or who are constantly subjected to the monotony and general fatigue effects of modern industry.

45 Bay State Road.

THE APPLICATION OF CERTAIN PHYSICAL EFFICIENCY TESTS*

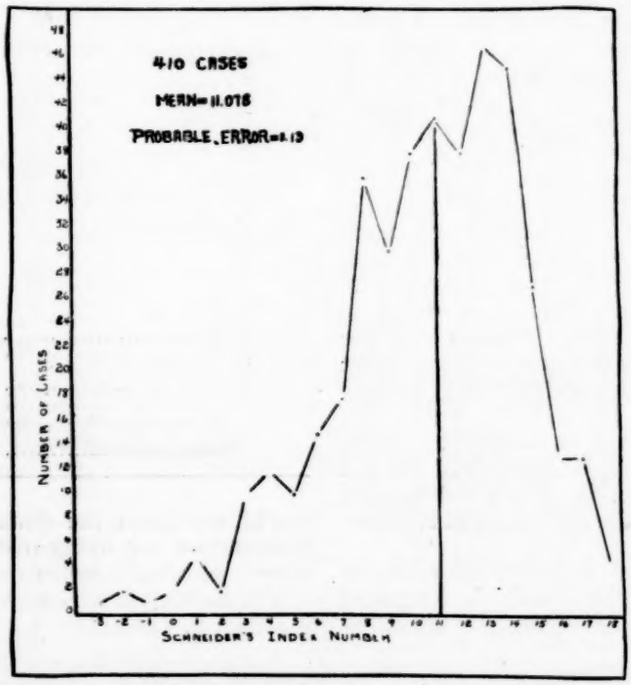
VERNER T. SCOTT, M.D.
Captain, M. C., Air Service
MITCHEL FIELD, L. I., N. Y.

There appeared last year in THE JOURNAL a description of a physical efficiency rating scheme, devised by Edward C. Schneider.[1] It is the purpose of this article to give applications of the test and the reasons for its adoption by the Medical Division of the Air Service.

In aviation we deal more with temporary than with permanent ailments, because men with serious physical defects are weeded out before they reach the stage of flying. As in industry, so in aviation, we encounter that condition known as "staleness"; and whereas in the industrial world it means lowered physical efficiency, in aviation it means all of that plus risk of life and destructive of aeroplanes.

A physician skilled in neuropsychiatry and cardiovascular work can make a diagnosis of "staleness," but he cannot determine the *degree* of fatigue. Schneider, by the use of arbitrary numbers, has made the best effort in this direction.

During the war we realized the necessity for a short, simple test as a measure of physical efficiency. There have been only two cardiovascular tests that appeared to meet the requirements of our needs—Crampton's[2] and Schneider's. These two tests were applied to men who were candidates for the flying status.



Scores obtained by 410 men subjected to Schneider's test.

From a study of 410 of these cases, in which the men were subjected to Schneider's test (recorded in the accompanying chart), the mean score was found to be 11. The lowest score, —3, was made by a man who was diagnosed as having neurocirculatory asthenia. Only four men made a score of 18, which is the highest possible under the system of rating. Forty-seven made a score of 13.

A COMPARISON OF SCHNEIDER'S AND CRAMPTON'S TESTS

To learn the relative merits of the two tests, the data were checked against the official examination for flying. Two hundred of these cases have been analyzed and the results tabulated in Table 1.

With Schneider's test, of those who made a score of 8 or higher, 149 were qualified and four disqualified on the official examination; and, on the other hand, of those with a score of 7 or lower, seven were qualified and forty were disqualified. On this basis we can say

* From the Medical Research Laboratory.

1. Schneider, E. C.: A Cardiovascular Rating as a Measure of Physical Fatigue and Efficiency, J. A. M. A. **74**: 1507 (May 29) 1920.
2. Crampton: Proc. Soc. Exper. Biol. & Med. **12**: 119, 1915.

with a fair degree of accuracy that those who make a score of 8 or more will be qualified on the physical examination, and those with a score of 7 or less will be disqualified.

TABLE 1.—RESULTS OF PHYSICAL EXAMINATION FOR FLYING

	Qualified		Disqualified	
Schneider's Index:	No. of Cases	Per Cent.	No. of Cases	Per Cent.
8 and above	149	97.4	4	2.6
7 and less	7	14.9	40	85.1
Crampton's Index:				
51 and above	118	86.0	19	14.0
50 and below	37	58.7	26	41.3
40 and above	142	80.0	23	20.0
39 and below	15	42.9	20	57.1

With Crampton's test, we obtained no clear line of demarcation, such as occurs in Schneider's rating. We took those with a score of 51 and above, and found that 118 were qualified and nineteen disqualified; while of those with a score of 50 and below, thirty-seven were qualified and twenty-six disqualified. Finding more men qualified than disqualified at 50 and below, we shifted the line to 40, and found that with a score of 40 and above, 142 qualified and twenty-three disqualified, and those of 39 and below, fifteen were qualified and twenty disqualified. There is no material advantage, therefore, in taking lower limits.

The higher correlation of the former test with the official physical examination is due to the incorporation of other well known physiologic factors omitted from the latter, namely, the pulse rate increase after exercise and the time required for the pulse rate to return to normal. Whereas Crampton rates a man on his pulse rate, increase on standing and the difference between the systolic pressures of the reclining and standing postures, Schneider rates the man on his reclining pulse rate, standing rate, pulse rate increase on standing, increase in the pulse rate after exercise, time required for the pulse rate to normal after exercise, and the difference between systolic pressures of the reclining and standing positions.

The major portion of the disqualifications were made on neuropsychiatry findings, such as increased psychomotor tension, prolonged secondary dilatation of the pupils, relaxed peripheral circulation, tics and tremors. It is the opinion of the neuropsychiatry department that these signs are manifestations of fatigue and that three of these appearing together give a sufficient reason for a temporary disqualification. It is an interesting fact to note that these symptoms are often associated with exaggerated responses of the circulatory system to exercise and postural changes of the body. With a Schneider index score of 7 or less, we can safely predict that at least three of the neurologic signs will be found by a competent examiner.

It is readily seen that a score of 7 is the dividing line of those qualified and disqualified. Of those with an index of 8, eighteen were qualified and two disqualified; on the other hand, of those with an index of 7, five were qualified and seven disqualified. We would say from the point of view of the physical examination for flying that a score of 7 or less indicates a physical condition that makes flying unsafe.

TABLE 2.—DISTRIBUTION OF TWO HUNDRED CASES EXAMINED FOR FLYING

	Number of Cases		
Schneider's Index:	Qualified	Disqualified	Total
18	1	0	1
17	5	0	5
16	10	0	10
15	16	0	16
14	16	0	16
13	26	0	26
12	12	0	12
11	13	2	15
10	19	0	19
9	13	0	13
8	18	2	20
7	5	7	12
6	2	9	11
5	0	7	7
4	0	6	6
3	0	5	5
2	0	2	2
1	0	3	3
0	0	0	0
1	0	0	0
2	0	1	1
Total	156	44	200

The manner in which the 200 cases were distributed is shown in Table 2.

TABLE 3.—EFFECTS OF PHYSICAL EXERCISE

Name	Date	Reclining Pulse	Points	Standing Pulse	Points	Increase on Standing	Points	Pulse after Exercise	Points	Return to Normal in Sec.	Points	Blood Pressure Systolic Reclining	Blood Pressure Systolic Standing	Points	Total Score	Comment
Lt. E.	7/31/19	96	1	99	1	3	1	117	1	80	2	116	114	0	6	Disqualified; diagnosed as staleness by neuropsychiatry; sent to recreational camp
	9/23/19	80	2	90	2	10	3	108	2	80	2	124	126	2	13	Returned from camp; found normal
Lt. W.	12/10/19	93	1	111	0	18	0	123	1	60	3	120	118	0	3	Disqualified by neuropsychiatry; long office hours 1½ years
	12/31/19	98	1	105	1	18	1	114	1	45	3	116	124	3	10	A hike of 2 hours; daily improvement found
Pvt. B.	11/29/19	75	2	87	2	12	2	108	1	75	2	126	128	2	11	A few symptoms of staleness found by neuropsychiatry
	12/ 4/19	78	2	93	1	15	2	114	0	60	3	114	112	0	8	Loading trucks for one week
	12/ 6/19	84	1	87	2	3	2	129	1	25	3	124	102	1	6	Loafing since last time examined
	12/ 8/19	93	1	96	1	3	1	135	1	120	1	118	126	3	4	Guard duty all night
	2/ 2/20	72	2	87	2	15	2	79	2	60	3	126	130	2	13	Ran 2¾ miles every morning before breakfast for 27 days; found qualified by neuropsychiatry
Lt. M.	1/12/20	87	1	111	0	24	0	120	1	60	3	132	112	1	4	Disqualified as staleness by neuropsychiatry; indoor work
	1/20/20	90	1	117	0	27	1	117	1	50	3	134	122	1	3	Continued indoor work
	1/27/20	90	1	123	0	27	2	126	0	120	1	132	120	1	1	Continued indoor work
	7/ 6/20	69	3	99	1	30	0	105	2	60	3	116	106	1	8	Been playing golf; outside work
	10/12/20	78	2	99	1	21	1	120	0	60	3	122	130	3	10	Qual. found; outdoor work

To show the advantage of a test that will measure the degree of physical efficiency or fatigue, I present a few cases in the form of case reports in Table 3. Lieutenant E. and Lieutenant W. came back to average physical condition as measured by the index in a comparatively short time, the former by full time recreation, the latter by shorter office hours and two hours of daily hiking.

Private B. is interesting, in that he had one week of outdoor exercise, which lowered his index. This was due to the fact that the work was too strenuous for his condition. Loafing did not help matters, nor did his all night guard duty; but when he was given his choice of any form of physical exercise, he returned a month later in fairly good physical condition. The case of Lieutenant M. is worthy of thought, because it shows how long it takes a man to come back to normal after being out of condition for a long time.

PROTOCOLS

LOSS OF SLEEP PLUS EXCESSES

Lieut. N.—
12/ 9/19: Index 5; average of 2 hours' sleep for two nights.
12/11/19: Index 13; 8 hours' sleep.

Sergt. V.—
7/ 1/20: Index 3; worked all night on aeroplane for Alaskan trip.
7/ 3/20: Index 10; had 8 hours' sleep.
A loss of sleep does produce a drop in the index.

ACUTE INFECTIONS

Capt. P.—
8/24/19: Index 15; feeling normal.
10/ 9/19: Index 7; acute rhinitis.
12/ 5/19: Index 14; feeling normal.
12/17/19: Index 18; feeling normal.

Major T.—
8/ 7/19: Index 7; diarrhea; feels weak.
8/23/19: Index 14; feeling normal.
12/10/19: Index 10; headache; 5 hours' sleep last night.
12/17/19: Index 17; feeling normal.

HOSPITAL CASES

Pvt. L.—
1/12/20: Index 5; diagnosis, Vincent's angina; 4th day in hospital; not confined to bed; no rise of temperature.
2/25/20: Index 10; throat better.
2/28/20: Index 14; feeling normal.
3/ 8/20: Index 7; detailed on kitchen police duty for a day.
3/ 9/20: Index 10; removed from kitchen police yesterday, because he complained of feeling weak.
3/15/20: Index 7; feels normal.
3/20/20: Index 6; feels normal; discharged from hospital.
Total number of days in hospital, 71.

Pvt. W.—
2/25/20: Index 0; diagnosis, unilateral tonsillitis.
2/27/20: Index 3; temperature, 99 F.
3/ 2/20: Index 14; patient up walking around.
3/ 3/20: Index 13; complains of other tonsil feeling sore.
3/ 5/20: Patient too sick to take index; other tonsil infected.
3/ 9/20: Index 4; patient confined to bed.
3/11/20: Index 13; feels normal; walking around.
3/12/20 Index 17; discharged from hospital.
Total number of days in hospital, 17.

In the case of Private L., the index was highest on the fifty-first day of his stay in the hospital, when his infection, if not completely gone, was at a very low ebb. Kitchen police duty produced a lower index, because the work was too strenuous; he should have worked up to it gradually. His index was a little higher the next day, and then gradually declined during the rest of his stay. It is reasonable to assume that if this man had been given graduated exercises from the time his infection ceased, he would have left the hospital in good physical condition.

In the case of Private W., the index rose rapidly after he got rid of his toxins. This supports the opinion that a person in good condition can repel a disease better and recuperate more quickly than a man in poor condition.

Incidentally, I will cite a case in support of the value of daily systematic exercises which is applicable alike to civilians and aviators. Last year in preparation for the transcontinental aeroplane flight, twenty-five aviators flew in from other flying fields and were given the index from one to two hours after landing. With the exception of one man, they all showed effects of fatigue. The average index was 9. This one man made a score of 17. In taking the usual history as to how many hours sleep, amount of exercise, etc., we found that this man devoted a little time each day to systematic exercise.

SUMMARY AND SUGGESTIONS

Schneider's test does not supplant, but should be used in conjunction with a thorough physical examination. For use with aviators and athletes, this is the best test so far offered for measuring physical efficiency and fatigue.

The practitioner of preventive medicine, and physical directors of schools and colleges, will find this test a valuable aid in determining the amount of exercise necessary for physical fitness in each individual case. There may be overtraining and undertraining of an individual. Although we find that a score of 7 or less is an indication of improper functioning of the neurocirculatory apparatus, we believe that a man who can only make a score of 9 should be given a thorough physical examination to determine whether his condition is due to disease or to insufficient exercise.

The conditions that we find that lower the index are aviation fatigue, loss of sleep, lack of physical exercise, alcoholic and sexual excesses, and acute infections.

We have encountered two conditions in which this test or any other test based on pulse rate will not reveal the true condition of the man. Bradycardia on account of the low pulse rate gives a better rating than the condition warrants, and those who are disturbed psychically by a physical examination will get a lower rating than they deserve on acount of high pulse rate. But the latter condition can be allayed by a tactful nurse or physician.

The index gives the true condition at the time of the test. When it comes to qualifying or disqualifying an aviator for flying, or to determining the amount of exercise needed by an athlete, it is best to determine the index on three successive days. If the man has not lost sleep or dissipated, his index will not vary more than 1 point. The reason for not relying on one index is that one may be getting his average physical condition plus loss of sleep or dissipation.

Tubercle Bacilli in Coagulating Blood.—Tubercle bacilli do not show up well by centrifuging unless they are in large clumps, but Sabathé and Buguet have recently called attention to the way in which the tubercle bacilli in the blood congregate in a layer in the zone which separates the clot from the serum when blood is coagulating. They never found any tubercle bacilli in the clot after coagulation, while they found them constantly in this zone in 130 specimens of blood from patients with tuberculosis in lungs, joints or kidneys, and with or without bacilli in the sputum.

RELATIVE EFFECTIVENESS OF VARIOUS FORMS OF TREATMENT IN NEUROSYPHILIS

OBSERVATIONS ON THE COMPARATIVE VALUE OF ROUTINE INTRAVENOUS TREATMENT, SPINAL DRAINAGE AND ARSPHENAMIZED SERUM INTRASPINALLY (SWIFT-ELLIS)*

JOHN H. STOKES, A.B., M.D.
Associate Professor of Dermatology and Syphilology, the Mayo Foundation, University of Minnesota

AND

EARL D. OSBORNE, B.S., M.D.
Assistant in Section on Dermatology and Syphilology, and Fellow in Dermatology, the Mayo Foundation

ROCHESTER, MINN.

The treatment of neurosyphilis by the drainage of spinal fluid, in conjunction with other modes of treatment, has been brought into prominence during the last four years. Gilpin and Earley,[1] in 1916, were the first observers to advocate this form of therapy. They reported encouraging results in three patients on Dercum's service. Following this report, Pilsbury,[2] in 1917, reported his results with the employment of mercurial inunctions with spinal drainage. He said, "On the whole the results are not striking, and similar effects might reasonably be expected without spinal drainage." Recently, in March, 1920, Dercum [3] strongly advocated spinal drainage, especially in paresis and tabes. He presents the case for spinal drainage with simultaneous intravenous arsphenamin and routine mercurial therapy. He contends that the results obtained by the methods in which arsphenamized or mercurialized serum is employed are due not to what is introduced into the dural canal, but to the withdrawal of fluid which, he asserts, is always practiced in connection with such methods. He believes that the results of so-called intraspinal therapy can be duplicated merely by drainage of fluid following intravenous injection. Without entering into anything suggesting argument in rebuttal, we can only state that therapists of our acquaintance who are getting good results make a practice of introducing as much or more serum than the amount of fluid withdrawn, so that reduced hydrostatic pressure as a means of causing transfer of remedial agents from the blood to the fluid can hardly be said to apply. The suggestion of Dercum, that the substances introduced into the canal in intraspinal therapy are dissipated so quickly that they can produce no effect, would seem to be the opposite of the conclusions of Becht [4] in a series of elaborate physiologic studies on the fluid, in which it was found that epinephrin and nicotin are not absorbed rapidly enough from the spinal canal to produce the characteristic physiologic effect on the blood pressure, and that epinephrin can be detected in the canal at least five hours after its injection. Mehrtens and MacArthur [5] found that the penetration of arsenic through the meninges into the fluid occurs in approximately 43 per cent. of cases after ordinary intravenous injection, but that this proportion increases to 92 per cent. when the intravenous injection of arsphenamin is given six hours after therapeutic irritation of the patient's meninges by an intraspinal injection of his own serum. Moreover, the concentration of arsenic is three times as great for patients having preliminary serum injection as in the controls. Mehrtens and MacArthur found, moreover, that spinal drainage did not increase the percentage of arsenic penetrations of the meninges. These various observations seem to be in direct opposition to the contentions on which Dercum bases his advocacy of simple drainage.

During 1918, about fifty patients with neurosyphilis were placed on spinal drainage therapy with a view of ascertaining, if possible, the advantages of this type of medication. Our method consisted of the weekly withdrawal of from 30 to 70 c.c. of spinal fluid from fifteen minutes to one hour following an intravenous injection of arsphenamin. Mercury, in the form of inunctions or the intramuscular injection of a soluble salt, was also employed in every case. Only twenty-five of the fifty patients have received sufficient treatment to be included in this review. The others either disappeared from observation, or further treatment was precluded by some definite contraindication. The average number of spinal drainages in each case was five, the highest number being nine and the lowest three. On the completion of drainage the patients were placed on interim inunction treatment and reexamined after intervals of from two to nine months. The somewhat disappointing results led to their being placed on Swift-Ellis-Ogilvie intraspinal treatment. In order to extend the comparison to include an estimate of the relative effectiveness of routine intravenous treatment and of spinal drainage, the twenty-five cases with spinal drainage were subsequently compared with fifty without spinal drainage. It is difficult in work of this type, which involves all the unforeseen variations of the individual case, each with its own strain of infecting organism and predisposed soil, to make comparisons that may be fully controlled and above criticism. For this reason we cannot offer final conclusions, but merely state that on the impressions created by this study we have ceased to place any great reliance on spinal drainage.

TABLE 1.—PATIENTS RECEIVING ARSPHENAMIN INTRAVENOUSLY FOLLOWED BY SPINAL DRAINAGE

		Spinal Fluid Before Drainage				Spinal Fluid at Completion of Course of Spinal Drainage		
Case	Diagnosis: Neurosyphilis:	Wassermann Reaction	Nonne Reaction	Lymphocytes	Drainages	Wassermann Reaction	Nonne Reaction	Lymphocytes
1 (180703)	Tabes dorsalis	+++	+	48	5	+++	—	3
2 (241147)	Tabes dorsalis	—	+	64	4	—	+	33
3 (242098)	Tabes dorsalis	+++	+	23	6	+++	—	50
4 (206279)	Juvenile paresis	+++	+	23	6	+++	+	13
5 (176751)	Early tabes dorsalis	+++	+	16	3	+++	+	17
6 (242135)	Taboparesis	+++	+	59	6	+++	+	R.B.C.
7 (236507)	General paresis	+++	+	15	9	+++	+	12
8 (237532)	Early taboparesis	+++	+	152	5	+++	+	22
9 (244843)	Tabes dorsalis	—	+	87	3	—	+	30
10 (227053)	Taboparesis	+++	+	71	5	+++	+	56
11 (217826)	Tabes dorsalis	+++	—	112	5	+++	—	6
12 (249310)	Questionable general paresis	+++	+	45	6	+++	+	12
13 (106152)	Tabes dorsalis	+++	—	31	4	+++	+	12
14 (210960)	Tabes dorsalis	—	—	1	4	—	—	3
15 (241013)	Meningeal involvement	+++	+	285	8	+++	+	36

* From the Mayo Clinic and the Mayo Foundation.

1. Gilpin, S. F., and Earley, T. B.: Drainage of Cerebrospinal Fluid as a Factor in the Treatment of Nervous Syphilis, J. A. M. A. **66**: 260-262 (Jan. 22) 1916.

2. Pilsbury, L. B.: Mercurial Medication with Spinal Drainage, J. A. M. A. **68**: 267-270 (Jan. 27) 1917.

3. Dercum, F. X. The Functions of the Cerebrospinal Fluid, with a Special Consideration of Spinal Drainage and of Intraspinal Injections of Arsphenamized Serum, Arch. Neurol. & Psychiat. **3**: 230-251 (March 20) 1920.

4. Becht, F. C.: Studies on the Cerebrospinal Fluid, Am. J. Physiol. **51**: 126 (Feb.) 1920.

5. Mehrtens, H. G., and MacArthur, C. G.: Therapy of Neurosyphilis Judged by Arsenic Penetration of Meninges, Arch. Neurol. & Psychiat. **2**: 369-375 (Oct.) 1919.

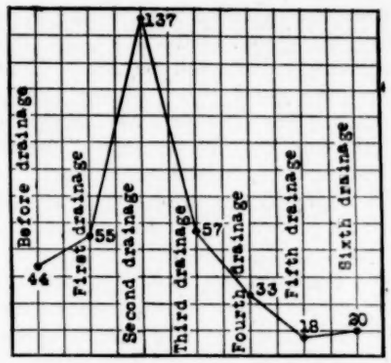
RESPONSE OF THE SPINAL FLUID WASSERMANN TEST TO SPINAL DRAINAGE

Of the twenty-five patients treated by routine measures with drainage, twenty-one had a positive Wassermann reaction on the spinal fluid on 0.3 and 0.4 c.c. (0.6 and 0.8 using one-fourth volume) before treatment was begun (Tables 1 and 2). Following a course of spinal drainage, nineteen, or all but two of these twenty-one patients, still had positive Wassermann reactions on the spinal fluid; and one of the two who became negative reverted to positive with a marked rise in cell count after a rest interval on inunctions. Of the four originally Wassermann-negative cases, all were still negative at the conclusion of treatment. It would seem that to the extent that it was applied, the procedure had little effect on the Wassermann reaction in the spinal fluid.

RESPONSE OF THE CELL COUNT TO SPINAL DRAINAGE

The cell count, contrasted with the Wassermann reaction on the fluid, responded very well to drainage. The average count was 61 lymphocytes before treatment and 19 lymphocytes at the conclusion of treatment. Something suggesting a Herxheimer-like rise followed the development in the patients of suggestive symptoms, such as headache, dizziness and nausea during the rise, and their subsidence during the fall of the cell count.

We have observed symptomatic Herxheimer reactions in many cases in which observations of the spinal fluid were not conducted with sufficient frequency to plot a curve of the type here presented. The reaction evidently consumes some time. It is worth while, therefore, to recall that the finding of a higher cell count on a second observation some weeks after the first is not necessarily evidence of unfavorable progress, but may on the other hand be a sign of therapeutic reaction at least theoretically encouraging.



Lymphocytes in case showing Herxheimer-like curve.

TABLE 2.—PATIENTS RECEIVING SPINAL DRAINAGE FOLLOWED BY INTRASPINAL TREATMENT (SWIFT-ELLIS-OGILVIE)

Case	Diagnosis: Neurosyphilis:	Spinal Fluid Before Drainage: Wassermann Reaction	Nonne Reaction	Lymphocytes	Drainages	Spinal Fluid at Completion of Course of Spinal Drainage: Wassermann Reaction	Nonne Reaction	Lymphocytes	Interval, Months	Spinal Fluid on Return: Wassermann Reaction	Nonne Reaction	Lymphocytes	Intraspinal Treatments	Spinal Fluid at Completion of Course of Intraspinal Treatment: Wassermann Reaction	Nonne Reaction	Lym. phocytes
16 (249102)	Taboparesis	+++	+	131	7	+++	+	9	7	—	—	74	6	—	—	5
17 (248639)	Tabes dorsalis	+++	+	27	4	—	+	R.B.C.	6	—	+	2	5	—	—	R.B.C.
18 (223423)	Tabes dorsalis	—	+	55	5	—	—	20	6	+++	+	109	6	—	+	10
19 (229763)	Chronic anterior poliomyelitis	+++	+	34	6	+++	+	19	2	+++	+	14	7	+++	+	5
20 (242004)	Tabes dorsalis	+++	+	96	7	+++	—	1	4	+++	+	2	5	+++	—	5
21 (118811)	Meningeal involvement	+++	—	13	4	+++	+	7	3	+++	+	28	6	+++	+	64
22 (219435)	Tabes dorsalis	+++	—	34	3	—	—	5	9	+++	+	43	5	—	+	6
23 (231016)	Early tabes dorsalis, neuroretinitis	+++	+	4	6	+++	+	72	4	+++	+	38	6	—	—	11
24 (206094)	Tabes dorsalis	+++	+	27	5	+++	+	20	3	+++	+	29	6	+++	—	3
25 (203504)	Taboparesis	+++	+	72	5	+++	+	7	6	+++	+	91	4	+++	+	4

by a fall in the curve of pleocytosis was observed in six of our twenty-five cases (Table 3 and the accompanying chart). We are inclined to believe that such a rise followed by a fall in the curve of pleocytosis may occur in patients receiving routine therapy for neurosyphilis without the use of spinal drainage, as we have observed even in favorably progressing cases that the

TABLE 3.—SUCCESSIVE CELL COUNTS OF CASES SHOWING HERXHEIMER-LIKE CURVES

Case	Lymphocytes: Before Drainages	First Drainages	Second Drainages	Third Drainages	Fourth Drainages	Fifth Drainages	Sixth Drainages
23 (231016)	4	67	157	82	20	66	72
24 (206094)	27	43	R.B.C.	47	25	20	29
27 (292098)	R.B.C.	23	47	R.B.C.	143	74	20
25 (203504)	28	64	45	13	7	—	—
9 (244843)	87	149	49	30	—	—	—
18 (223423)	44	55	137	57	33	18	20

cell count in a fluid taken with the sixth intravenous arsphenamin injection may be higher than that taken five weeks before with the second injection. The completeness of the curves here presented simply pictures accurately as a result of frequent examination what we are inclined to believe may take place without spinal drainage. The interpretation of this pleocytosis as a sign of transient meningeal reaction was borne out by

Our observation, so far as the changes in the cell count with the patient under treatment are concerned, is essentially confirmatory of the recently published work of Solomon and Klauder [6] on a provocative reaction in the spinal fluid.

STUDY OF TEN PATIENTS WITH NEUROSYPHILIS TREATED BY SPINAL DRAINAGE AND SUBSEQUENTLY BY INTRASPINAL THERAPY

Following the none too striking outcome of spinal drainage, ten of the twenty-five patients who had been drained were placed on the Swift-Ellis-Ogilvie arsphenamized serum treatment from two to nine months after completing their course of spinal drainage. While it may be argued that the previous treatment prepared the patient to some extent for the intraspinal therapy, it has been our experience that the effect of single courses followed by long rest intervals is less cumulative than is often believed, and that a comparison of the effect of subsequent treatment with earlier treatment is possible. On the other hand, in fairness to spinal drainage it must be recalled that it preceded intraspinal therapy, so that some of the effect of the Swift-Ellis treatment may be attributed to the cumulative effect of previous therapy in general. On the

6. Solomon, H. C., and Klauder, J. V.: Provocative Reactions in the Cerebrospinal Fluid in Neurosyphilis, Arch. Dermat. & Syph. 2: 679-691, 1920.

other hand, spinal drainage had been preceded by routine therapy in fourteen of the twenty-five cases, and in seven of those receiving both spinal drainage and Swift-Ellis treatment. The amount of treatment received prior to drainage varied from six to twenty-four arsphenamin injections (average nine injections) and fifty-four inunctions, or twenty-one succinimid injections for each patient. It is evident, therefore, that the good effect of the intraspinal therapy could scarcely be regarded as merely cumulative action on relatively untreated cases. The ineffectiveness of the drainage is, of course, made the more apparent. Table 2 gives a summary of this group. Before spinal drainage was begun, the spinal fluid was strongly positive in each case. In only one (Case 18) was the Wassermann test negative, and in this case there were 55 lymphocytes. Following the course of spinal drainage two of these nine cases (Cases 17 and 23) showed a reversal of their Wassermann reactions to negative with a fall in cell count to within normal limits. The case originally Wassermann-negative (Case 18) remained so, and the cell count dropped to 20. Seven originally Wassermann-positive cases remained so after spinal drainage with a varying amount of improvement in the cell counts. The three patients whose spinal fluid Wassermann reactions had become negative following spinal drainage returned for observation after two had rested six months and one had rested nine months. Two of the three (Cases 18 and 23) showed a complete relapse to a strongly positive Wassermann reaction in the fluid, with cell counts that had relapsed to 109 and 43, respectively. The other patient remained entirely negative, with a cell count of 2. All ten patients were then placed on the Swift-Ellis-Ogilvie form of intraspinal therapy. The average number of intraspinal injections given was approximately five, the same as the number of spinal drainages. Nine of the patients still had strongly positive fluid Wassermann reactions and marked pleocytosis when intraspinal treatment was begun.

At the completion of five intraspinal treatments, five patients showed a complete reversal of the spinal fluid-Wassermann reaction to negative as compared with two after drainage, with a marked fall in cell count to 11 or below. In Table 2 the marked difference in response of the same patients to the two methods of treatment is more apparent. Three of the five patients are still under observation and have not relapsed.

COMPARISON OF SPINAL DRAINAGE WITH ROUTINE INTRAVENOUS THERAPY

A comparative study was now undertaken of fifty cases chosen at random from our files in which only arsphenamin intravenously and mercury in the form of inunctions or the intramuscular injection of a soluble salt were administered. In other words, the cases paralleled the spinal drainage cases without the spinal drainage. The same number of arsphenamin injections and approximately the same amount of mercury were given each patient in this group as were given to patients who received drainage. The average cell count in these cases before treatment was 73 as compared with 61 in the drainage cases; at the conclusion of treatment the count was 20 and 19 cells, respectively. In other words, the responses of the cell count to treatment was as good in the cases routinely treated as in the drainage cases. Of the fifty patients without spinal drainage, thirty-four gave Wassermann-positive reactions on the spinal fluid before treatment. Ten of these thirty-four (29.4 per cent.) were Wassermann negative at the completion of their course. On the other hand, the spinal fluid Wassermann reaction was reversed in only two (9.5 per cent.) of twenty-one patients with spinal drainage. It seems probable, therefore, that routine standard treatment alone is as effective as routine treatment plus spinal drainage. The discrepancy in favor of routine methods without drainage may perhaps be due to an unconscious selection of somewhat more refractory cases for the treatment by drainage.

CONCLUSIONS

Without making any pretense at setting forth final conclusions in the matter, in view of the difficulty of establishing adequate controls in a clinical investigation of this type, we may state that in our experience:

1. A comparison of the findings on patients receiving spinal drainage in conjunction with arsphenamin intravenously and routine mercurialization, and the findings on patients receiving an equal amount of routine treatment without spinal drainage, demonstrates no superiority in favor of the drainage method.

2. The most immediate change produced by either of these methods of treatment is in the cell count.

3. A transient but marked rise followed by a fall toward normal limits occurred in patients receiving spinal drainage, and we have reason to believe that a similar Herxheimer-like curve of pleocytosis accompanied by transient exacerbation of symptoms occurs in many patients under treatment for neurosyphilis by routine methods.

4. Temporary rise in the cell count early in the course of treatment should not therefore necessarily be regarded as of unfavorable prognostic significance.

5. In ten patients in whom spinal drainage had produced indifferent results, the administration of arsphenamized serum intraspinally some months later produced what appeared to be more satisfactory and more permanent results.

GALLBLADDER DISEASE

REPORT OF TWO HUNDRED AND THIRTY CASES*

DONALD S. ADAMS, M.D.
WORCESTER, MASS.

Memorial Hospital records show 230 operative gallbladder cases from Jan. 1, 1910, to June 1, 1919. Of the patients, 221 were women and nine, men. To each patient or to the patient's physician a form letter was sent, and all but ten were answered. In this way it was possible to learn their present state of health, any symptoms persisting and the presence of any sequelae, such as a discharging sinus or postoperative hernia. Furthermore, if they had required subsequent operative interference, the nature of the operation was carefully investigated.

The average age was 44 years. The oldest was a man, aged 72, and the youngest a boy, aged 17. Both of these patients enjoy comparatively good health today, over a period of six years. Moynihan [1] notes an average age of from 40 to 45 years in gallbladder disease.

In studying the history of our 230 patients with a view to ascertaining possible etiology, four were found

* From the Surgical Service of Memorial Hospital.
* Read before the Worcester District Medical Society, Jan. 12, 1921.

1. Moynihan, B. G. A.: Gall Stones and Their Surgical Treatment, Ed. 2.

giving a history of typhoid fever, and a fifth came in with the disease well advanced in the fervescent stage and complicated by an acute cholecystitis. At operation no stones were found, a pure culture of *Bacillus typhosus* was obtained, and the gallbladder was successfully drained. This patient reports uninterrupted good health ever since the operation and recovery from typhoid fever, five years ago. Fifteen patients had had pelvic inflammatory disease; twenty gave histories of severe and frequent attacks of tonsillitis, and ten had had pneumonia. One patient was found to have, in addition to gallstones, a severe ulcerative condition of the upper jejunum. The lumen of the bowel was being encroached on, so a lateral anastomosis was done with apparently good results. In favor of the focal infection theory, one case especially stood out. One of the nurses in training was admitted, in October, 1914, with an acute coryza; her symptoms subsided under treatment and she felt well, until at the end of a week she was seized with violent gastro-intestinal symptoms. She vomited, and developed jaundice. There was moderate tenderness over the entire abdomen, but no localized pathologic area could be noted at the time. Her symptoms having subsided, she was discharged apparently well, November 12. One month later she was readmitted with tonsillitis of the follicular type. From

TABLE 1.—TYPES OF CASES AND TREATMENT *

Types of Cases	No.	Per Cent.	Treatment	No.	Per Cent.
Simple acute cholecystitis	36	15.7	Cholecystostomy	151	65.6
Acute and chronic cholecystitis with stones	175	76.0	Cholecystostomy with choledochostomy	4	1.8
Empyema with stones	10	4.3	Cholecystectomy	72	31.4
Carcinoma (not proved to be primary)	2	0.8	Choledochotomy with cholecystectomy	1	0.4
Stones in gallbladder and common duct	6	2.8	Choledochostomy alone	1	0.4
Stones in common duct alone	1	0.4	Cholecystotomy	1	0.4
Total	230	100.0		230	100.0

* The average number of days in the hospital following operation was: with drainage of gallbladder and ducts, 23.3 days; with removal of gallbladder with and without drain, 20.6 days.

the crypts a streptococcus was grown. This patient did well until December 28, when another series of abdominal pains began which localized in the upper right quadrant. Operation was performed immediately. An acute condition of the gallbladder was found and drained. From the gallbladder contents a streptococcus having the same characteristics as that found in the throat was obtained. This patient has remained well for six years.

Among the 221 women, 90 per cent. had had one or more children, a factor which must be considered, for pregnancy seems to have a bearing on the formation of gallstones.

The incidence of a coexisting pathologic condition of the appendix must be considered. An adequate gallbladder incision should allow for a routine examination of the appendix when there is no danger of spreading an infection into the lower quadrants. Deaver [2] contends that the appendix is guilty in the majority of the cases of upper abdominal ailments, and that the gallbladder is probably second. Furthermore, at operation, it is not always possible to place the blame, and therefore it becomes necessary to remove both. In our 230 cases, the appendix was found diseased twenty-six times. It was removed fifteen times during drainage operations on the gallbladder and eleven times during cholecystectomy. Ninety-two per cent. of these patients report excellent health over a period of from three to nine years.

In 230 cases there were thirteen deaths, or 5.3 per cent.

Smithies reports 6 per cent. of deaths in 1,000 cases; C. H. Mayo,[3] 4.6 per cent. in 1,767.

TABLE 2.—CAUSES OF DEATH IN TEN CASES WITH DRAINAGE *

Disease	Cause of Death
Empyema of gallbladder with stones	Peritonitis
Cholelithiasis	Facial erysipelas and septicemia
Acute cholecystitis	Peritonitis
Cholelithiasis	Acute cardiac dilatation
Cholelithiasis	Chronic valvular disease and peritonitis
Cholelithiasis	Pulmonary embolus
Cholelithiasis with ruptured gallbladder	General peritonitis
Cholelithiasis with deep jaundice	Postoperative hemorrhage
Empyema of gallbladder	Acute hemorrhagic pancreatitis
Cholelithiasis	Peritonitis

* Ten deaths in 151 cases, 6.6 per cent.

Complications were noted six times. One cholecystectomy became obstructed on the sixth day. Dense adhesions about the hepatic flexure were found at operation. The patient made an uneventful recovery, after these were freed. Two primary wound infections occurred in drained cholecystectomies. One postoperative pneumonia was found with subsequent wound

TABLE 3.—CAUSES OF DEATH IN THREE CASES WITH CHOLECYSTECTOMY *

Disease	Cause of Death
Cholelithiasis with existing cholecystduodenostomy	General peritonitis
Cholelithiasis	Acute cardiac dilatation
Empyema with stones	General peritonitis and pancreatitis

* Three deaths in seventy-three cases, 4.1 per cent.

infection. A two months' miscarriage on the twentieth day after cholecystostomy required curettage, and in two other cholecystostomies the patients acquired right sided femoral phlebitis.

Operative results were estimated from a series of 207 replies out of 217 communications. Among these 207 patients, 199 were women and eight men.

A consideration of the cases in which cholecystectomy was performed shows seven with improvement and five with no results following the operations. Two of the

TABLE 4.—OPERATIVE RESULTS

Operations	Total	Well No.	Well Per Cent.	Improved No.	Improved Per Cent.	Unimproved No.	Unimproved Per Cent.
Cholecystostomy	135	97	71.8	25	18.4	13	9.8
Cholecystectomy	70	58	82.8	7	10.0	5	7.2
Choledochotomy	1	1	100.0				
Choledochotomy with cholecystectomy	1	1	100.0				

latter patients died within eight months after operation from general abdominal carcinoma. These were the cases in which excision of malignant gallbladders was performed. Three patients report postoperative hernias. One of these had primary infection after operation, and another had a secondary infection following ether pneumonia. Two patients operated on in 1915 had trouble within six months after leaving the hospital. Their chief symptoms were persistent indigestion, occa-

2. Deaver, J. B.: Operation and Reoperation for Gallstone Disease, J. A. M. A. 74: 1061 (April 17) 1920.

3. Mayo, C. H.: Collected Papers of the Mayo Staff, 1915.

sional regurgitation of food, and constipation. One required operation within the year, and the other at the end of twenty months. Both showed dense adhesions involving the hepatic flexure and duodenum. These were freed, and both patients made excellent recoveries, each reporting good health over a period of three or four years.

Twelve patients who underwent cholecystostomy were not relieved by gallbladder drainage and came to subsequent cholecystectomy. Of these, two came to the complete operation within ten weeks, two within one year, three within two years, and the remainder within from three to five years. One of the latter who was operated on in 1919 showed early malignancy, apparently primary, a condition which could have been obviated had excision been done at first. Adhesions were found in all cases, and 75 per cent. were complicated by cholelithiasis. As all of these patients had primary gallbladder drainage with unsatisfactory results and secondary cholecystectomy with good results over a period of from one to eight years, I think it only fair that we put them down to the credit of cholecystectomy.

Of the drainage cases, twenty-five patients were improved. That is, over a period of from one to nine years they were able to attend to their housework, had one or more pregnancies, and noted only some increase in constipation and a certain degree of gastric symptoms. Twelve of these patients had died, but their husbands or other relatives kindly gave me the required information. The average life was thirty months after operation. One patient developed acute intestinal obstruction two years after operation. She was brought to the hospital in a moribund state, and laparotomy revealed dense adhesions about the hepatic flexure. The causes of death in the other cases were: pneumonia, three; Bright's disease, two; gastric and pancreatic carcinoma, one; uterine carcinoma, one; mammary carcinoma, one; cardiac disease, three, and diabetes, one. Of the remaining thirteen patients who have had little or no relief from operation, four report postoperative hernia; six have occasional gallbladder colic, with or without jaundice, constipation and persistent indigestion. Three of these six had persistent sinuses from one to two years, but are healed at present. Two still have persistent sinus, after a period of twelve and eighteen months, respectively. The sixth patient, after enjoying four years of health, suddenly developed, last winter, a swelling in the region of the old closed sinus. After rise of temperature, abdominal discomfort and jaundice for a week, the sinus reopened spontaneously and a large amount of mucopurulent bile was evacuated and a large gallstone was passed by rectum. Her symptoms subsided rapidly and her condition is satisfactory at present. Four patients have received no benefit whatsoever. They report the same symptoms noted before operation.

The foregoing statistics are, of course, based on a comparatively small number of cases. Were there more, the percentages of relief following the operation probably would be less. Thus, C. H. Mayo,[3] in a series of 242 cholecystostomies, reports 53 per cent. cured; 38 per cent. improved and 9 per cent. not improved; and of 219 cholecystectomies, 71 per cent. cured, 22 per cent. improved and 7 per cent. not improved.

The mortality in cholecystostomy is greater than that noted in cholecystectomy (6 per cent. as against 4.1 per cent., or approximately 3 to 2). Furthermore, the actual results in cholecystectomy are more satisfactory, from 10 to 20 per cent. more cures being effected. Another interesting factor arises when we consider the gallbladder patient who returns for a second or even a third operation. In our cases thirteen patients returned for their second operation after drainage of the gallbladder. One of these was redrained, but obtained relief only after a complete removal a year later. The other twelve obtained relief after cholecystectomy was performed. Primary cholecystectomy apparently incurred the need for further operative interference far less, for only two returned, and these were relieved by simple freeing of the adhesions. Deaver [2] found that out of fifty-one patients with gallbladder disease returning for operation, thirty-six had had cholecystostomy and fifteen had had cholecystectomy; and in another series of his personal patients, 10 per cent. had had primary cholecystostomy and only 1.3 per cent. had had cholecystectomy. In view of all these statistics, the complete excision of the diseased part seems to offer better results.

By the use of the duodenal tube, Lyon [4] is able to withdraw bile from the common duct, gallbladder and hepatic ducts. This physiologic type of drainage is based on Meltzer's theory of contrary nerve innervation, the sphincter of Oddi first being relaxed by the passage of magnesium sulphate solutions into the duodenum without touching the gastric mucosa.

The procedure as it now stands can offer little from the standpoint of treatment in real cases of acute gallbladder disease and cholelithiasis. But with the possibilities it offers of fractional biliary removal so that the bile from the various parts can be examined microscopically as well as grossly and bacteriologically, a new avenue for accurate diagnosis has been opened.

REMOVAL OF THE GALLBLADDER WITHOUT DRAINAGE

FURTHER OBSERVATIONS *

A. MURAT WILLIS, M.D.
Professor of Clinical and Operative Surgery, Medical College of Virginia
RICHMOND, VA.

The modern tendency is strongly against the promiscuous use of drainage after operations on the pelvic or lower abdominal organs. Moynihan [1] expresses the opinion of the majority of surgeons when he says: "Now, thanks largely to the work of Clark and others, who have studied the question with great care, we know that, when employed as a routine measure, drainage is rather a means of sepsis than a measure of escape from its effects. Drainage of the peritoneal cavity is very rarely necessary." The experience gained in the treatment of wounds during the World War has served to strengthen this view, and a generally felt prejudice against the use of drains in these patients is seen in several articles that have recently appeared in the British journals.

In addition to serving as a pathway for the entrance of infection, drains inevitably weaken the abdominal wall, protract the convalescence, and promote the formation of adhesions. Observations that I have been able to make recently have served to impress me

4. Lyon, B. B. V.: New York M. J. **112**: 23 (July 3) 1920; **112**: 56 (July 10) 1920.

*Read before the Medical Society of Virginia, Petersburg, Va., Oct. 26-29, 1920.

1. Moynihan, G. A.: Abdominal Operations, Philadelphia, W. B. Saunders Company, 1905, p. 33.

with the uselessness of drainage in experimental peritonitis of the dog; for in the cases in which drainage was used, there was a walling off of the drain within a few hours, the omentum becoming adherent around the drain, which certainly seemed to prevent the latter from removing any of the peritoneal exudate, and, moreover, the animals that were closed without drainage did fully as well as those in which drainage was used. So strongly have I been impressed that I ventured recently to close without drainage the peritoneal cavity of a patient suffering from penetrating wounds of the abdominal wall with perforations of the large intestine, a rapid and uneventful recovery resulting.

It is unnecessary, however, to argue in favor of the strict limitation of the use of drainage after operations involving the pelvic or lower abdominal organs; this principle is too well recognized by the progressive surgeon. It is surprising, however, in view of the consensus regarding the undesirability of drainage here that so little attention has been paid by the rank and file of surgeons to the question of omitting drainage after operations on the biliary tract.

Three years ago, I [2] published the report of my results after nearly five years' experience in omitting drainage following cholecystectomy. In a series of thirty-eight cases, there was only one death, the convalescence was shortened, and permanent relief appeared to be secured in a much larger proportion of cases than by the older procedure of prolonged drainage. The method was adopted at the Mayo Clinic, and recently, papers by Richter [3] and Bottomley [4] have appeared, both of these authors reporting excellent results. In spite of these favorable reports, the omission of drainage after cholecystectomy has not been generally adopted, a condition which I consider deplorable, for nowhere else will the evil results of unnecessary drainage be more apparent than when the bile passages are involved. Halsted,[5] in a recent communication commending the attitude of Richter in omitting drainage after operations on the common duct, states that the nutritional disturbances resulting from the exclusion of bile from the intestine are more serious consequences of drainage than is the formation of adhesions. It is my opinion, however, that this exclusion of bile is of secondary importance, because bile can be temporarily supplied by its oral administration, a procedure I have found quite efficacious in preventing marked disturbance when the natural supply is prevented from entering the intestine. In reporting the results of experiments carried out on dogs, I showed that bile alone spilled in the peritoneal cavity tended to cause adhesions; but when the bile was contaminated with pathogenic micro-organisms, adhesions of an extent and density seen nowhere else in the abdominal cavity were produced. More recently, I have found that ligating the common duct in dogs results in the ligature cutting through and allowing bile to escape into the cavity. When animals survive this procedure, which they did with surprising frequency, the continuity of the common duct being reestablished, it is difficult to describe the extent and character of the resulting adhesions. These observations are in keeping with clinical experience, for secondary operations on patients that have been already subjected to operation on the bile passages followed by drainage reveals widespread, dense adhesions. It is hard to conceive that this matting together of the adjacent structures would not cause decided functional disturbance and be responsible for the persistence of symptoms and the return of the patient for further surgical treatment.

In the preceding discussion, I have attempted to show the deleterious consequences that are certain to follow the prolonged use of drainage after cholecystectomy. What plausible arguments can be urged in favor of employing the pack or drain after this operation?

First, in cases of persistent oozing of blood, that it may be unsafe to close without drainage. The frequency of this occurrence, as judged by my own experience, has been much exaggerated. It has been very unusual for me to encounter a case in which a dry pack left in a short while did not effectually check this oozing.

Second, to allow the escape of infectious or otherwise noxious material. If, as Moynihan points out, the drain more often serves as a means of ingress rather than escape for infectious material in other abdominal operations, why should not the same be true when we are dealing with the bile passages? Bile in the peritoneal cavity, unless in enormous amounts, does not seem to endanger life; the greatest injury that it is usually capable of is the formation of adhesions. This was illustrated by the experiments already mentioned, in which a tight ligature was placed around the common duct. This ligature cut through eventually, allowing the escape of bile into the cavity, but a considerable proportion of the dogs survived. Since the pack or drain saturated with bile is even more productive of adhesions than the bile alone, one cannot hope to gain by attempting to remove bile in this way. If bile is spilled in the cavity, it is my practice to wash it out with saline solution, the latter being removed from the cavity by means of an electric suction apparatus. By this means, the peritoneum is much more thoroughly cleaned than would be possible by drainage. Following the operatic technic that I have described elsewhere, there is scarcely any possibility of more bile escaping after the completion of the operation of cholecystectomy; for, with a patent common duct, it flows into the intestine and the pressure within the duct is not unduly elevated. The development of my present technic has been a gradual evolution. In the beginning, realizing that the opinion held by the leading surgeons was utterly opposed to the omission of drainage, I always employed drains in cases of the least doubt, erring on the side of overconservatism. Impressed by the fact that, when two or more ligatures are placed at different levels on the cystic duct at time of operation and drainage is employed, no evidence of staining ever occurred, I have come to feel that the cases which drainage benefits are extremely rare.

In the three years that have followed the appearance of my earlier paper, it has been possible for me to extend my observations on the results of omission of drainage after cholecystectomy; the patients having been treated in this way now number seventy-two, with two deaths. At necropsy of the two fatal cases there was no evidence of leakage from the stump of the cystic duct. The same salient features were observed in the patients in the latter part of this series as were reported in the earlier paper; a shortened and more

2. Willis, A. M.: Cholecystectomy Without Drainage, J. A. M. A. **69**: 1943 (Dec. 8) 1917.
3. Richter, H. M.: The Technique of Gall Bladder and Common Duct Surgery, Surg., Gynec. & Obst. **29**: 455 (Nov.) 1919.
4. Bottomley, J. T.: The Question of Drainage in Cholecystectomy, Boston M. & S. J. **183**: 232 (Aug. 19) 1920.
5. Halsted, W. S.: The Omission of Drainage in Common Duct Surgery, J. A. M. A. **73**: 1896 (Dec. 20) 1919.

comfortable convalescence, and a larger proportion of patients obtaining permanent relief. The essential features of the operation as originally described remain the same. Richter has modified my technic by leaving the stump of the cystic duct free in the peritoneal cavity, considering that I have been guilty of a "peculiar basic error" in covering it with peritoneum. I must confess that I am unable to see why this covering the raw surface constitutes a "basic error," and my results would indicate that the "error" has not been followed by disaster. Indeed, it seems to be a generally accepted rule that any raw surface in the peritoneal cavity should be so covered.

CONCLUSION

I would emphasize again that the omission of drainage after the majority of the operations of cholecystectomy is a procedure that is perfectly safe, and that the results obtained by such omission are distinctly superior to those following the older method of packing or draining with gauze. This is indicated clearly not only by my own results but also by those obtained by other surgeons, and it is my earnest hope that the omission of drainage in such cases will be more widely tried, for I am thoroughly convinced that the surgeon who makes an impartial test will become a convert.

BRONCHIECTASIS AND BRONCHITIS ASSOCIATED WITH ACCESSORY SINUS DISEASE

GERALD B. WEBB, M.D.
AND
G. BURTON GILBERT, M.D.
COLORADO SPRINGS, COLO.

Up to the year 1916, medical literature contained little of note associating bronchiectasis and chronic bronchitis with diseases of the upper air passages. The removal of adenoids in children had long been recognized as benefiting repeated or persistent bronchitis. The occurrence of nasal polypi was connected with bronchial asthma. It remained for the French to instruct us in the importance of careful nasal examinations in all cases of chronic cough not due to tuberculosis.

During the World War, all the nations engaged were confronted with the difficulties in the diagnosis of pulmonary tuberculosis, a matter which became especially serious for France.

In 1914, St. Clair Thompson,[1] discussing the complications of sinus disease, wrote: "The same cause [nasal and sinus suppuration] often explains the inveteracy of bronchorrhea."

In 1916, Rist [2] called attention to the association of chronic bronchial cough—too frequently considered in the French "triages" as due to tuberculosis—with chronic disease of the nasal sinuses. Rist compared the respiratory tract with the urinary tract, cystitis being so frequently the consequence of renal infection.

Sergent,[3] another French army officer, at once corroborated Rist's statements in a publication on cases entitled "faux tuberculeaux." Sergent reported that incorrect diagnosis had been made in one third of the cases of the supposedly tuberculous soldiers, and that most of these mistakes were in men who had on more thoughtful investigation chronic bronchitis associated with chronic infection of the nose or of the nasal sinuses.

Both Rist and Sergent insisted that correction of the nasal disease brought about cure of the bronchitis.

It was the privilege of one of us [4] to be associated with Rist and Sergent during 1918, and to call attention to their work when similar conditions arose in the American Expeditionary Forces.

In 1919 one of us [5] briefly referred to the failure of internists to realize the dependence of many forms of bronchiectasis and chronic bronchitis on disease of the accessory sinuses, and it appears that physicians still do not request thorough investigation of the nose in such conditions.

Mullin and Gilbert,[6] in 1920, laid further emphasis on such associated conditions.

Since 1918 we have made roentgen-ray examinations of the accessory sinuses in all cases of chest disease, when the sputum proved repeatedly negative to the tubercle bacillus. The results have fully confirmed the French writers. Few cases of bronchiectasis or of chronic bronchitis have been found in which chronic infection of the accessory sinuses was not demonstrated. Bilateral empyema of the antrums is most frequently encountered. At times all the sinuses are involved. The findings have been invariably proved correct by the opening and washing of pus from these sinuses. Such pus usually contains pneumococci, similar to those found in the sputum.

Our cases have been of long standing, and in consequence the relief and the improvement of the cough, even with the additional postural drainage of the chest, have not been so marked as in the cases of shorter duration reported from France.

We have been especially impressed that the history in many cases was negative to nasal disease, the patients denying pain, nasal discharge, or any sign suggesting nasal infection. They have been most surprised at the results of the investigations, having for the most part been treated over varying periods for pulmonary tuberculosis.

REPORT OF CASES

The accompanying reports of three cases, from a series of thirty-eight, well illustrate the association of bronchiectasis or of chronic bronchitis with suppuration of the nasal sinuses:

CASE 1.—Mrs. F. B., aged 29, whose family history was negative, had measles at the age of 15, followed by complete recovery. An operation for appendicitis was performed thirteen years ago. Both breasts were removed for tumor ten years ago. The patient had influenza two years ago. She has taken cold very easily and often for years. These colds were always in the chest. She has had a slight discharge from the nose and nasopharynx for years. She has never had headaches of any kind. A few days after ether anesthesia thirteen years ago she took a severe cold in her chest but did not have pneumonia. She has coughed and expectorated ever since, and has been worse by spells. The sputum comes up easily, in thick, yellow pus with a bad taste and odor, and

1. Thomson, St. Clair: Some of the Symptoms and Complications of Sinusitis, Practitioner, London, June, 1914, p. 745.
2. Rist, E.: Les principes du diagnostic rationnel de la tuberculose pulmonaire, Presse méd. 24: 305 (July 13) 1916; Le diagnostic differential de la tuberculose pulmonaire et les affections chroniques des fosses nasales, ibid. 24: 321 (July 24) 1916.
3. Sergent, E.: Histoire suggestive de quelques faux tuberculeux; diagnostic de la tuberculose pulmonaire et des affections des foies respiratoires supérieures, Bull. et mém. Soc. méd. d. hôp. de Paris, July 28, 1916. Journal statistique d'un centre de triage, J. de méd. et de chir. prat., Sept. 10, 1918.
4. Webb, G. B.: Symposium on Tuberculosis, War Medicine, Paris, January, 1919.
5. Webb, G. B.: Some Lessons of the War in Tuberculosis, Tr. Am. Climat. & Clin. A., 1919.
6. Mullin, W. V., and Gilbert, G. B.: Relation of Sinus Disease to Disease of the Chest, Tr. Mid-West. Sec. Am. Laryng., Rhin. & Otol. Soc., February, 1920.

has reached 12 ounces daily at times. There have been slight, scattered pains in the chest occasionally. She has lost 10 pounds in weight. The temperature has been normal all the time. The pulse has varied from 80 to 90. The important points in the examination are: The patient expectorates profusely when in the inverted position. There are coarse, moist râles and rhonchi scattered over both lungs, more numerous at the bases. The sputum contains no tubercle bacilli, but many streptococci, pneumococci and *Micrococcus catarrhalis*. The urine is normal, hemoglobin, 74 per cent. Roentgen-ray examination of the sinuses shows both antrums opaque. Pus from the antrums contains pneumococci.

CASE 2.—Mr. D., aged 26, whose family history was negative, was said by his mother to have had pneumonia three times as a child. He had an attack of pneumonia four years ago. He has had chronic catarrh in his head for many years and frequent pains over his eyes. He has been coughing and raising sputum for several years. The onset was gradual, and the patient can give no definite date as to when it occurred. He was rejected by the army in 1917 because he was considered tuberculous. He spent a year resting in a health resort, but the cough and expectoration increased. There was no fever at any time. The pulse ranged between 70 and 80. The cough was not increased by working. Examination of the lungs disclosed decreased breath sounds and many coarse, moist râles over both bases, with a few medium coarse râles over the upper portion of the left lung. The sputum contained no tubercle bacilli at any time, but many pneumococci. Roentgen-ray examination of the sinuses reveals pansinusitis, both antrums being especially opaque.

CASE 3.—Mrs. L., aged 28, whose family history was negative and whose personal history was not important, had had headaches for a year while in school. These were apparently relieved by glasses. She has been coughing and expectorating profusely for fifteen years. She has had considerable discharge from the nose most of this time. The sputum tastes bad and amounts to 8 ounces a day. She coughs and expectorates more when she first lies down. She is thin and anemic. There are many moist râles scattered over the lower half of each lung. Blood examination reveals: hemoglobin, 82 per cent.; leukocytes, 12,000; polymorphonuclears, 74 per cent. The sputum contains no tubercle bacilli but some staphylococci and pneumococci. Roentgen-ray examination of the sinuses reveals the right antrum opaque.

PREVENTION OF CHRONIC CHEST DISEASE

The route of infection of the lung from the nasal sinuses is not yet clear. Experiments of Mullin and Ryder[7] indicate that direct lymphatic absorption is possible, especially in cases in which there is little escape of pus from the sinuses. With free escape of pus they feel that direct inhalation may explain the associated disease.

From the foregoing review it is at once evident that it is the internist who must first suspect the nasal or sinus disease, and that if we are to prevent such chronic chest disease, early attention must be directed to the upper air passages and appropriate treatment initiated.

402 Burns Building.

7. Mullin, W. V.: The Lymph Drainage of the Accessory Sinuses, Tr. Am. Laryng., Rhin. & Otol. Soc., 1919. Mullin, W. V., and Ryder, C. T.: Experimental Lesions of the Lungs Produced by Inhalation of Fluids from the Nose and Throat, Am. Rev. Tuberc. 4: 683 (Nov.) 1920.

The Road to Investigation.—Reflection breeds speculation and leads to understanding and discovery.—H. Sewall, *Am. Rev. Tuberc.* **4**:824, 1921.

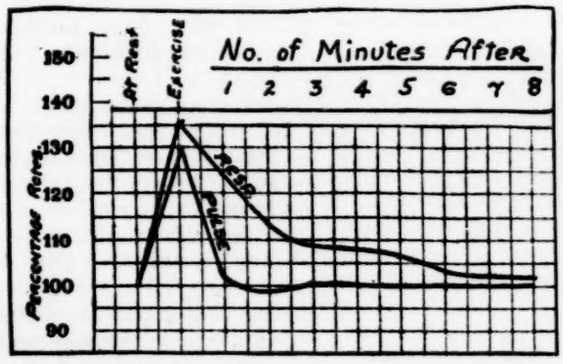
CLINICAL EVIDENCES OF ACIDEMIA IN CHRONIC NEPHRITIS

BEAUMONT S. CORNELL, M.B. (TOR.), M.R.C.P.
BROCKVILLE, ONT.

Elsewhere I[1] have emphasized the clinical evidence of acidemia in even early cases of chronic nephritis. It was shown that in ninety-five out of a hundred cases in which nephritis had been present under three years, there was a special kind of dyspnea that seemed unexplained by the heart. In the present article I will give further observations.

Frequently, one sees a nephritic who is dyspneic after mild exertion, but whose heart is not enlarged and whose heart rate rises and falls in a normal manner after exercise. A chart embodying the average respiration and pulse response to exercise in 100 cases of early chronic nephritis is reproduced here. The tardiness with which the respirations approach their rest rate is readily seen to be in contrast with the quicker (and normal) slowing of the heart rate.

Although not more than 20 per cent. of patients make a complaint of their dyspnea, since in mild cases it is not troublesome, 95 per cent. admit having it, when questioned, and its presence can be proved by testing the reaction of the respiration rate to exercise.



Average respiration; pulse response to exercise in 100 cases of early chronic nephritis; the rates are calculated to percentages of rest rates, which are taken as 100.

I am writing only of noncardiac dyspnea. For the purpose of distinguishing it from heart dyspnea, two observations are helpful:

1. It has no accompanying cyanosis.

2. It is speedily removed by the administration of sodium carbonate by the mouth.

It is remarkable how, after, say, four doses (20 grains each) of the alkaline salt, the most extreme dyspnea of this type subsides, and usually disappears altogether. There is then no dyspnea of any kind left, thus proving that the heart had no part in causing the respiratory distress.

From a study of more than 100 cases of chronic nephritis, it is apparent that various degrees of this dyspnea occur. Some patients (5 per cent.) show none at all. The majority have it, but not sufficiently to complain of it. Perhaps a fifth of them will mention it; and, finally, in about 5 per cent. of cases it is the most distressing symptom.

The degree of this dyspnea, in any given case, cannot be predicted by reference to the degree of renal damage. To illustrate:

J. S. and R. D. both had such extreme dyspnea (noncardiac) that it was distressingly present even when they were lying at rest; in J. S. the phenolsulphonephthalein test showed 50 per cent. in two hours, but in R. D. only 16 per cent.

On what factors the degree of the dyspnea depends is uncertain. No doubt the degree of acidemia and the degree of sensitiveness of the respiratory center are cardinal considerations. But, beyond these again, why should the blood of a nephritic be unable to rid itself

1. Cornell, B. S.: A Clinical Study of Chronic Nephritis, Canad. M. Month. 5: 257 (July) 1920.

of the acids of exercise as quickly as the blood of a normal individual? The explanation probably does not lie in the fact of lowered renal excretion, because (as seen above) the 50 per cent. patient may be as dyspneic as the 16 per cent. patient.

VALUE OF DETECTING ACIDEMIA

The practical value of clinical detection of acidemia is twofold:

1. *In Early Diagnosis.*—A syndrome of lumbar pain, frequency (day or night) and dyspnea of noncardiac origin is suggestive of incipient nephritis, even in the absence of albumin. Noncardiac dyspnea is a very early symptom in nephritis and has frequently led me to prolong the search for albumin with ultimate success, even though the albumin was absent as long as two weeks.

2. *In Treatment.*—The physician will frequently meet a nephritic whose distressing dyspnea fails to respond to digitalis; he has no cyanosis or cardiac enlargement or signs of cardiac decompensation. To this patient sodium bicarbonate (pure) in sufficient doses gives prompt relief. So far as I know, there is no contraindication to its use. The only caution, perhaps, should be not to render the urine alkaline for too long a period, thereby facilitating phosphatic deposits.

VISUAL EFFECTS

It is interesting to note that in fully half the cases, color changes in the light from an electric bulb are described by the patient during his dyspneic period after exercise. To some the light becomes red, to others blue, green or variegated. The delusion lasts almost as long as the dyspnea lasts and, furthermore, once the patient is put on large doses of sodium bicarbonate, this delusion is no longer experienced.

RESULTS OF OPERATION FOR VARICOCELE *

JOHN DOUGLAS, M.D.
Attending Surgeon, Bellevue Hospital; Associate Surgeon, St. Luke's Hospital
NEW YORK

During the period immediately preceding and after the entrance of the United States into the World War and while recruiting was in active progress, a large number of operations for varicocele were performed on young men in order to permit their entrance into the army or navy. As a result of one of these operations in which the ligation of the veins was followed by the development of a hydrocele, a suit for alleged malpractice was brought.

A search of the American literature at this time, in order that the highest medical authorities on the subject might be quoted, revealed the following:

Keyes' "Urology," published in 1917,[1] in the portion of the book devoted to the operation for varicocele, states nothing as to either hydrocele or atrophy of the testicle resulting secondarily from the operation.

Chetwood,[2] in his "Practice of Urology," published in 1916, states that "in some instances traumatic hydrocele develops."

Cabot,[3] in his "Modern Urology," published in 1918, states that "traumatic hydrocele is a rare sequel."

Morton,[4] in "Genito-Urinary Disease and Syphilis," published in 1918, states that "atrophy of the testicle exceptionally follows either high or low operation, even when the vas is not included in the ligature." He says nothing about hydrocele.

The modern textbooks on surgery are no closer to the facts than most of the books on urology.

Gask and Wilson,[5] in their textbook on surgery, published in 1920, discuss the merits of the high and low operation and say: "The former operation is the simpler and better, and the scar is approved by the members of the various examining boards. *There is no risk of recurrent hemorrhage or of a vaginal hydrocele appearing later,* a hydrocele being a common complication of the low operation."

In the "Oxford Surgery," published in 1918, the article on varicocele is written by Burghard,[6] who does not mention the after-results, nor is it mentioned in the latest volume of Da Costa's[7] "Surgery" or in the new "Lehrbuch der Chirurgie" by Garrè and Borchard,[8] published in 1920.

Warbasse,[9] in his "Surgical Treatment," published in 1919, writes that "the ordinary operation of resection of the veins often fails to secure just the necessary physiologic balance of circulation, and pain and nutritive disturbances follow." He says nothing of hydrocele.

Keen's[10] "Surgery," although published in 1908, is a favorite book of reference for the legal expert. It says: "The results under modern technique are excellent. A cure, as far as the real discomforts resulting from the enlarged veins can almost always be obtained."

Among the textbooks on urology it was only in an English book by Thomson Walker,[11] "Genito-Urinary Surgery," that any evidence of the frequency of hydrocele as a sequel of varicocele operations was considered with any detail or an approach to the actual facts in the case. He writes "I have frequently seen hydrocele of the tunica vaginalis follow the operation even in the hands of competent surgeons," and he quotes an article by Corner.[12] He states that Corner found hydrocele in 23 per cent. of the cases, most of which apparently developed soon after operation. The article by Corner is based on reports of 100 cases which he examined, out of 500 operations for varicocele which were performed on patients previous to admission to the British army. He writes "Hydroceles, consequent upon varicocele operation, are of two kinds, one large and tense which is noticed by the patient, the other small and flaccid which is not noticed by the patient. The former were present in 8 per cent. of the cases, the latter in 15, a total of 23 per cent." He mentions the fact that hydrocele may appear two years after the operation. He also reports two cases of spermatocele, making 2 per cent.; recurrence of varicocele in 2 per cent.; testis harder in 90 per cent.; the testicle enlarged in 55 per cent.; smaller than the gland of the opposite side in 21 per cent.; thickening of the vas deferens in 8

* Read before the Surgical Section of the New York Academy of Medicine, Jan. 7, 1921.

1. Keyes, E. L., Jr.: Urology, New York, D. Appleton & Co., 1917.
2. Chetwood, C. H.: Practice of Urology, New York, William Wood & Co., 1916, p. 326.
3. Cabot, Hugh: Modern Urology, Philadelphia, Lea & Febiger 1: 482, 1918.
4. Morton, H. H.: Genito-Urinary Disease and Syphilis, St. Louis, C. V. Mosby Company, 1918, p. 596.
5. Gask and Wilson: Surgery, 1920, p. 1112.
6. Burghard, F. F.: Varicocele, in Oxford Surgery, 1918.
7. Da Costa, J. C.: Modern Surgery, Philadelphia, W. B. Saunders Company, 1919.
8. Garrè and Borchard: Lehrbuch der Chirurgie, 1920.
9. Warbasse, J. P.: Surgical Treatment, Philadelphia, W. B. Saunders Company 3: 318, 1919.
10. Keen, W. W.: Surgery 4: 615, 1908.
11. Walker, J. W. T.: Genito-Urinary Surgery, 1914, p. 827
12. Corner: Brit. M. J. 1: 191 (Jan. 27) 1906.

per cent.; sensibility of testis lost in 2 per cent., and orchitis in 5.6 per cent., immediately following operation.

In the American literature, Bloodgood [13] protested against the number of varicocele operations which were being performed on recruits for the army and navy. He stated that in sixteen cases of low operation for varicocele, six were traced. Of these patients, one had atrophy of the testicle and one had hydrocele. In the high operations, seventeen of twenty-nine patients were followed up; none had atrophy of the testicles, but five had hydroceles, which was almost 30 per cent. He says: "Hydrocele, therefore, may follow the operation for varicocele even after the most approved method, in which after operation there is no swelling of the testicle or thrombosis of the vein."

RESULTS AT ST. LUKE'S HOSPITAL

There were 303 patients operated on for hydrocele from Jan. 1, 1917, to April 1, 1920, in St. Luke's Hospital, and a careful effort was made to examine these cases in the spring of 1920 in order to determine the after-results. These operations had been performed, not by any one surgeon, but by different surgeons attached to the staff of the hospital. In almost every instance, the operation performed was the high operation. As a number of these young men, immediately following the operation, went into the army or navy, many of whom were not even residents of the state or city, it has been difficult to trace a large number of them. Of the 303, 143 were not heard from. The letters were returned in forty-one more instances; a reply was received by letter in forty. Of those who replied by letter, seven had hydrocele; thirty reported that they were all right, and three wrote that they had pain, while word was received that four had been killed in action. Seventy-six patients returned for examination. Of these, only thirty-seven were reported normal. Four had an atrophy of the testicle, two moderate and two marked. Two still had a varicocele present, and there was a hydrocele present in thirty; large in twenty-two, and small and flaccid in eight. There was an enlargement of the left testis in three. That is, of the seventy-six examined, approximately only 48 per cent. can be said to be perfectly normal, and 39 per cent. of those examined had hydrocele to some degree. Of those reporting by letter, seven stated that they had hydrocele or had been operated on for hydrocele subsequent to their discharge from the hospital after their operation for varicocele; and as a number of the patients who were examined in the return clinic were found to have a small flaccid hydrocele after they had stated that they believed that they were all right, it is a fair assumption that in all probability a number of those patients who considered themselves cured also had a small hydrocele. Of the total of 106 patients examined or reporting by letter, 35 per cent. had hydrocele of some degree. It is to be remembered that these figures apply only to the number of patients examined or reporting, which was a little more than one third of the total operations.

AVOIDANCE OF THE COMPLICATIONS

The hydrocele that develops following a varicocele operation may be small and flaccid or may develop into a large, tense sac. When it is of the small and flaccid variety, it causes little or no discomfort to the patient. When a large, tense hydrocele develops, the patient is unquestionably far worse than he was before the operation. It therefore behooves us to determine, if possible, the reason for this complication in order to avoid it; or, if its avoidance is impossible, either to stop performing this operation in most cases, or to undertake it only after carefully explaining to the patient the possibility of hydrocele following a varicocele operation. And it is also of importance that the frequency of this occurrence should be explained in our textbooks, as otherwise an unprincipled or, if we wish to be charitable, we may say an ignorant doctor, can combine with an equally unprincipled lawyer and make things most unpleasant for the surgeon performing the operation, even if they fail to receive any compensation for their efforts.

First, should the operation ever be done? Bloodgood urges against the performance of the operation. He states that as a rule the varicocele disappears at about the age of 25, and with few exceptions before 30. While this is true in many instances, a number of the patients in the above-mentioned series of cases on whom the operation for varicocele was performed were past this age. In the group reported there were thirty-three between 25 and 30 years of age; eight between 30 and 35; five between 35 and 40, and three over 40. The rest were under 25. It is furthermore to be remembered in considering these figures that the group was made up of young men volunteering or drafted for the army or navy. Many of them, however, had no subjective symptoms and applied for operation only in order to enter the service. It therefore appears to me that we should strictly limit our operation to those cases in which the varicocele is of unusually large size and causing distinct symptoms in a patient who is not of the ordinary neurasthenic type. It has even been recommended that the tunica vaginalis be excised at the time the veins are ligated and removed. This, I should think, would add to the danger of atrophy of the testicle.

CAUSE OF HYDROCELE

As to the cause of the hydrocele, this is difficult to state. If, in the high operation, the testicle is forced up from the scrotum in order to make an unusually low ligation of the veins, and the tunica vaginalis is opened or traumatized, it would be easy to explain; or if all of the veins of the cord, including those which accompany the artery of the vas which should not be tied, as well as those of the pampiniform plexus, are included in the ligature, this by interference with the circulation of the testicle might readily result in hydrocele. However, hydrocele has developed when neither of these things is done, thus contradicting one author who states that hydrocele develops only when an operation for varicocele is improperly performed, and also the so-called medical expert witness who swears on the stand that only when the operation is improperly performed does a hydrocele develop.

It is fair to assume, from the evidence which we have, that the hydrocele is a result of circulatory disturbance. Bloodgood states that in sixty-one cases of operation for hernia in which the veins were excised by the older method, atrophy of the testicle took place in nine instances, about 15 per cent. In a number of these cases, hydrocele developed when the veins were excised, and none developed in any instances when the veins were not excised. Taylor [14] has quoted Blood-

13. Bloodgood, J. C.: A Warning Against Operations for Varicocele on Applicants for Enlistment, Registrants for the Selective Draft and Soldiers, J. A. M. A. **70**: 409 (Feb. 9) 1918.

14. Taylor, A. S.: The Results of Operations for Inguinal Hernia, Arch. Surg. **1**: 382 (Sept.) 1920.

good as stating that hydrocele occurred in about 4 per cent. of the cases in which the veins had not been excised, and in 22 per cent. in which they had been excised.

It is my impression from an examination of these patients in the return clinic, and the discharge notes on their histories when they left the hospital, that hydrocele was less likely to occur in those cases which healed not only with primary union, but also with the least amount of thrombosis in the remaining stumps of the veins or in which there was no hematoma or swelling of the testicle immediately following the operation, than in those in which this occurred. In most of them, hydrocele developed a very short time after leaving the hospital, especially when a discharge note showed that there was some thickening about the testicle or the stumps of the remaining veins at the time of discharge from the hospital. One patient, however, who was examined in the follow-up clinic two months after discharge, and who then had no hydrocele, had developed one a year later.

The essential factor in the operation for hydrocele consists in the ligation and excision of the veins of the pampiniform plexus, leaving uninjured and untouched the spermatic artery (although this is usually included in the ligature) and the veins and artery which accompany the vas deferens. There is, however, a free anastomosis between the two sets of veins. When the veins of the pampiniform plexus are ligated and excised, necessarily thrombosis occurs in the stumps. If this thrombosis extends by the anastomosis with the veins accompanying the artery of the vas, these veins also become thrombosed. It is to be expected that more interference with the circulation would therefore occur than would result otherwise, and while this thrombosis is particularly likely to extend in the presence of a small amount of infection, it unquestionably may extend in an absolutely aseptic case, if the amount of anastomosis or the position of the anastomosing branches favors its extension. This appears to me to be an adequate explanation why hydrocele occurs in some cases and not in others; and as it is a matter which cannot be controlled at the time of operation or afterward, I consider it an unavoidable complication in a certain number of instances, and therefore that the hydrocele itself is then an unavoidable result of a properly performed operation, and not the result of an improperly performed operation.

SUMMARY AND CONCLUSIONS

1. The operative treatment of varicocele is frequently followed by hydrocele. Of a total of 303 operations, seventy-six patients were examined, thirty of whom, or 39 per cent., had a hydrocele; forty reported by letter or telephone, and of these seven, 17 per cent., stated that hydrocele had developed. Of the total of 106 patients examined or reporting by letter, thirty-seven, or 35 per cent., had hydrocele. Four, or about 4 per cent., had atrophy of the testicle, and there were two recurrences of the varicocele.

2. Modern textbooks on urology and on general surgery fail with one exception to recognize the frequency of this complication.

3. The operation should not be performed except in those cases of very large varicocele giving marked symptoms in a non-neurasthenic patient—certainly not in the type of cases previously referred by the various medical examining boards for admission to the army or navy.

4. If the operation is undertaken, the frequency of hydrocele as a complication should be explained to the patient as a protection to the operating surgeon.

5. In the performance of the operation every care should be taken to avoid trauma to the veins of the cord, and to prevent hematoma or even slight infection, and thus to limit thrombosis and also to avoid the ligation of the spermatic artery as well as the artery of the vas.

568 Park Avenue.

ORGAN STIMULATION BY THE ROENTGEN RAY*

WILLIAM F. PETERSEN, M.D.
AND
CLARENCE C. SAELHOF, M.D.
CHICAGO

Much,[1] in the preface to his "Pathologic Biology," has criticized, perhaps with justice, modern medical research. He says:

> There exists a pronounced tendency at the present time to overemphasize diagnostic methods. A diagnostic idea sweeps over the whole world with the greatest rapidity. If many therapeutic problems remain unanswered, it is possible that the reason lies less in the difficulty of the subject than in a lack of interest in biologic therapy. . . . Our only hope is that these diagnostic efforts may pave the way for later therapeutic discoveries.

A survey of modern roentgenology reveals this proclivity in clear outline. Day by day, diagnostic technic becomes more refined and useful; therapeutic use lags far behind. What, indeed, can we consider the yield in therapeusis? An occasional effect on malignant tissues or benign tumors; greater usefulness in glandular tuberculosis and in the leukemias; some application in certain goiters. The dermatologist and the gynecologist, too, find a limited field of indication.

Perhaps the early efforts to use the roentgen ray—and the radioactive agents—in malignant diseases is responsible to some degree for this relative paucity of therapeutic results. The roentgenologist has become obsessed with the idea that therapeutic results must be achieved through the destructive effects of the roentgen ray. We believe, on the contrary, that the therapeutic application of the roentgen ray will find far greater possibilities when once the simple biologic fact that cellular stimulation follows roentgen-ray exposure receives the consideration of the internist.

Heretofore we have emphasized almost exclusively the destructive effects to be achieved with the roentgen ray, either on malignant cells or on tuberculous granulation tissue, the effort being constantly made to intensify the effect on the pathologic tissue and to spare the normal tissues. But it is a biologic aphorism that agents which in large doses are toxic to cells act as stimulants in small doses. Pharmacologically, we constantly make use of just this principle.

If, then, the roentgen ray is active in a destructive sense, why should we not take advantage of its properties as a stimulant, the more so since we may thereby stimulate certain diseased organs whose metabolic functions are vital to the organism as a whole? From a nontechnical point of view it would seem that we could

* From the Department of Pathology and the Laboratory of Physiological Chemistry, University of Illinois College of Medicine.

1. Much, H.: Pathologische Biologie, Ed. 3, Leipzig, 1920.

make use of no agent more suitable. We can with modern apparatus gage the dosage in a fairly satisfactory manner: it can be used selectively, that is, we can to some degree limit the effect to certain organs or tissues—and the effects should be promptly noticed—advantages that our pharmacologic methods do not all possess.

When we speak of organ or cellular stimulation it will be clear, of course, that we distinguish in this case between increased metabolic processes and reproductive stimulation. The latter is commonly implied when the roentgenologist speaks of stimulation.

At least two methods seem possible through which organ stimulation by means of roentgen rays might be of therapeutic use, the one direct, the other indirect. The former can be illustrated in a very simple manner by merely studying the rate of flow from some gland after roentgen-ray exposure.

EXPERIMENTAL WORK

EXPERIMENT 1.—*Stimulation of liver.*—The gallbladder of a 10-kg. dog was removed and a cannula inserted in the common bile duct; the operation was completed at 8:30. Collection of bile commenced at 9 and continued for three hours. Roentgen-ray exposure was made at noon for ten minutes (liver region, Coolidge tube, 10-inch focal distance, 8 ma., 5-inch back-up, unscreened). The bile secreted during the ten minutes' exposure was collected separately. The results expressed in volume of bile secreted as well as the amount of bile pigment (colorimetrically determined) are given in Table 1.

TABLE 1.—SECRETION OF BILE IN EXPERIMENT 1

Time	Bile C.c.	Bile Pigment
9-10 a. m.	0.4	1.
10-11	1.5	0.99
11-12	2.4	0.96
12-12:10 (roentgen-ray exposure)	1.3*	0.66†
12:10-1:10	3.5	1.6
1:10-2:10	3	1.05
2:10-3:10	2.75	0.95
3:10-4:10	4.7	1.35
4:10-5:10	2.6	1.4
5:10-6:10	2.8	1.45

* 7.8 c.c. per hour.
† 3.96 per hour.

EXPERIMENT 2.—*Kidney stimulation.*—In an 8-kg. dog, cannulas were inserted into both ureters in the evening, and hourly determinations of urine secretion were begun at 9 a. m. Roentgen-ray exposure of the right kidney was made at noon, and collection of urine was continued for five hours (Table 2).

TABLE 2.—URINE IN EXPERIMENT 2

Time	Volume of Urine—Left Kidney C.c.	Volume of Urine—Right Kidney (Irradiated) C.c.	Total Nitrogen Excretion Right Kidney Gm.
9-10	9	10.5	0.055
10-11	8	10	0.048
11-12	9	7	0.028
12-1 (Roentgen ray at noon)	6	7	0.03
1-2	5	13	0.058
2-3	7	10	0.032
3-4	4.2	4.7	0.012
4-5	3.5	4.2	0.01

The diuretic effect on the kidney that was exposed is apparent, and is associated with an increase in the amount of total nitrogen excreted.

EXPERIMENT 3.—*Pancreatic stimulation* (internal secretion).—A partial pancreatectomy was performed on a dog, Nov. 30, 1920, a portion of the tail of the pancreas being left in situ. After determination of sugar tolerance, the animal was placed on a constant diet containing 100 gm. of fat-free meat, 50 gm. of dried cracker meal, and 15 gm. of bone ash. The sugar determination of the urine is given in Table 3.

It will be observed that the only time that this animal was sugar free was on the 15th, two days after roentgen-ray stimulation.

TABLE 3.—SUGAR DETERMINATION IN THE URINE IN EXPERIMENT 3

Date	Gm.
January 9	5
January 10	5.5
January 11	2.8
January 12	3.8 *
January 13	6.8
January 14	3.12
January 15	0
January 16	2.5
January 17	5.32
January 18	8
January 19	2.76
January 20	6.8

* Roentgen-ray exposure over pancreatic area for ten minutes, afternoon of the 12th and morning of the 13th.

CLINICAL APPLICATION

While it is possible that our indications for liver stimulation are at present indefinite, the clinical application of kidney stimulation and the stimulation of glands with an internal secretion is more apparent. Allen [2] has recently made the statement that "any positive means of augmenting the endocrine pancreatic function even by a little would give therapeutic results far surpassing those of the negative plan of sparing the function by diet." From preliminary clinical observations now in progress we have gained the impression that by means of such roentgen-ray stimulation a method of decided usefulness is offered for the treatment of diabetes. We may mention that we have irradiated various organs in wholly or partially depancreatized dogs without being able to influence the sugar tolerance in any degree.

To illustrate the fact that the roentgenologist has constantly the factor of tissue depression or destruction in mind, rather than that of increasing metabolic function, we call attention to the paper of Dresel [3] in this particular connection. Dresel has endeavored to alter the sugar tolerance of diabetics by irradiating the suprarenals, expecting to lower their function and so indirectly affecting pancreatic secretion. He reports some transient lowering of the blood and urine sugar of diabetes, due, in our opinion, to an unintentional irradiation of portions of the pancreas.

Fraenkel [4] seems to have been the first to make definite efforts to develop the use of stimulation by means of roentgen rays in the treatment of internal diseases. In a recent paper he calls attention to a number of clinical conditions so treated, including the irradiation of the ovaries in certain forms of dysmenorrhea, irradiation of the thymus and hypophysis in osteomalacia, irradiation of the periosteum to facilitate the healing of fractures, irradiation of the epiphysis of bones and the hypophysis of children to promote growth, and irradiation of the spleen and bone marrow in pernicious anemia, the spleen in tuberculosis, etc.

INDIRECT EFFECTS: ENZYMES; ANTIBODIES; THROMBOPLASTIC SUBSTANCES

The second effect of organ stimulation by means of the roentgen ray may be somewhat more complex in its mechanism, but therapeutically equally as useful. It involves the observation that following organ stimulation certain substances may be discharged from the cells which act on remote pathologic lesions.

2. Allen, F. M.: Am. J. M. Sc. **160**: 781, 1920.
3. Dresel, K.: Deutsch. med. Wchnschr., **46**, No. 45, 1920.
4. Fraenkel, M.: Deutsch. med. Wchnschr. **46**: 1309, 1920.

Hektoen [5] has approached this problem from the antibody side and has endeavored to increase antibody production by irradiating various organs, particularly the hematopoietic system.

In a paper published elsewhere we have shown that it is possible to mobilize enzymes (protease, diastase, erepsin, etc.) after irradiating various organ complexes.

Stephan [6] observed that after irradiating the spleen a marked effect could be observed on the coagulation time, a finding that received immediate confirmation.[7]

The clinical application of such indirect effects has been found in the reported treatment of asthma by irradiating the spleen and the hypophysis,[8] and the favorable results which irradiation of the spleen is supposed to have on a tuberculous process.[9]

Indeed, when we come to the particular field of the roentgenotherapist—malignant diseases—in which the effect is supposedly a directly destructive one on the malignant tissue, it is possible that the effect is not selective per se, but depends first of all on the peculiar vascular instability of malignant tissues and secondly on indirect biologic alterations produced in the normal cells of the host. A discussion such as that of Keysser [10] in a recent paper is of interest in this connection.

SUMMARY

The roentgen ray, in proper dosage, has the property of stimulating cellular metabolism. When organs are selectively stimulated by roentgen rays, therapeutic results can be achieved either by direct stimulation of an external secretion (the kidney) or of an internal secretion (the pancreas in diabetes). A second method of possibly influencing remote pathologic lesions lies in the mobilization of antibodies, enzymes and thromboplastic substances following selective organ stimulation. The effects on tuberculosis (irradiation of the spleen), on hemophilia and purpura (irradiation of the spleen) and some of the effects on malignant tissues can possibly be examined from this point of view with profit. It is probable that the indications of roentgen-ray therapy in the treatment of internal diseases will find marked extension if proper recognition is given the possibility of organ stimulation by such physical means.

5. Hektoen, Ludwig: J. Infect. Dis. **27**: 23 (July) 1920.
6. Stephan, R.: München. med. Wchnschr. **67**: 309, 1920.
7. Neuffer, Hans: München. med. Wchnschr. **69**: 40, 1921.
8. Ascoli, M., and Fagiuoli, A.: Riforma Med. **36**: 622 (July 10) 1920; abstr. J. A. M. A. **75**: 903 (Sept. 25) 1920.
9. Manukhine, J. J.: Vrach. Gaz. **15**: 617, 1914.
10. Keysser, F.: München med. Wchnschr. **69**: 4, 1921.

Public vs. Physicians.—Physicians are merely human beings with special training. Like other human beings they are often guilty of selfishness and neglect, and shamefully often of ignorance, which in this age is perhaps the most remediable defect. Too often the physician forgets to study the patient as well as the disease, falling into ruts out of which he is only jostled by the activities of mental healers and dietary faddists. It is an interesting commentary upon democratic processes that many public questions are settled not according to the well thought out opinion of the public at large, but according to the views or desires of those who shout most audibly. To accomplish legislative objects physicians as a group must be prepared to do a fair proportion of the shouting. In short, to improve the understanding between the layman and the physician, medical men should work for the improvement in the first place of medical and secondly of lay education in matters pertaining to the human body; they should attempt a more genuinely altruistic outlook in all their work upon patients, although of course protecting their own perfectly ethical interests; and they should be willing at all times to play a proper part as citizens for the promotion of the common good.—Editorial, *Colorado Medicine*, February, 1921.

Clinical Notes, Suggestions, and New Instruments

LESIONS OF TYPHOID FEVER PRODUCED BY BACILLUS FAECALIS-ALKALIGENES

MAZYCK P. RAVENEL, M.D., COLUMBIA, MO.
Professor of Preventive Medicine and Bacteriology, University of Missouri School of Medicine

This case seems worthy of record on account of the unusual bacteriologic findings:

A well developed man, aged 21, died on the sixth day of clinical illness. The necropsy, which revealed lesions typical of typhoid fever in an early stage, was made two hours after death by Dr. D. H. Dolley, professor of pathology at the University of Missouri School of Medicine, who has kindly allowed me the use of his notes, from which such abstracts as illustrate the case are given:

The spleen was enormously enlarged, measuring 22.5 by 13.5 by 10 cm. It weighed 850 gm. It was dark colored, firm, and granular in texture. The splenic nodules were prominent.

The liver was slightly enlarged and congested. Microscopic sections revealed extensive focal necrosis.

The mesenteric glands were enormously enlarged and congested. Extensive hyperplasia was evident in microscopic sections.

The lower ileum contained a considerable amount of free blood. Beginning 71 cm. above the ileocecal valve and extending to the valve, eight ulcers were found in size from 1 by 1 cm. to 8 by 2 cm. Between these ulcers, fifty-nine elevated patches were counted, the surfaces of which were not yet ulcerated, though the surface layer of some could be easily rubbed off, leaving typical ulcers. These elevations were enlarged solitary and agminate glands.

In the large intestine, eighty-nine enlarged solitary follicles were counted, eleven of which were ulcerated. These were situated from 2 to 43 cm. below the ileocecal valve. The ulcers were early in type, the edges slightly elevated above the central areas, giving the typical plateau formation. The centers were yellow, shading into golden brown. There was necrosis—apparently superficial—though microscopic sections disclosed that it extended down to the muscularis. There was no hemorrhage about the ulcers, though injected vessels were visible on the surface. On section, the ulcers showed a thin layer of yellow necrotic material over a white nodule quite distinct from the more pink surrounding tissues. The nonulcerated patches were similar in structure.

BACTERIOLOGIC FINDINGS

Bouillon and agar cultures were made from the spleen and intestinal patches, all of which gave abundant growth. Endo plates streaked from these cultures gave colonies considered typical of the colon and typhoid organisms. In both the cultures from the spleen and intestine, the typhoid-like organism predominated greatly. The colon isolated was typical in every respect. The typhoid-like organism appeared typical on all the ordinary mediums, except that it grew more luxuriantly than usual and had a more moist appearance, and answered all staining requirements. It failed, however, to agglutinate with known typhoid serums of several strains, and in successive generations did not improve in this respect. In Russell's double sugar medium it gave no reaction in butt or slant. Its reaction was then tried on dextrose, galactose, dextrin, mannite, lactose, inulin and maltose, with negative results. These tests were repeated weekly up to the eighth week, always with the same result. Litmus milk remained unchanged in appearance for from eight to ten days; then it became darker and showed a slight gelatinous coagulation.

The organism was compared with a known culture of *B. faecalis-alkaligenes* furnished through the courtesy of Dr. E. O. Jordan, and the two were found to correspond.

COMMENT

The number of cultures made and the great predominance of *B. faecalis-alkaligenes* in all of them leaves no doubt that

this organism was the causative agent in the production of the lesions, which, as said before, were those typical of severe infection by the typhoid organism.

The literature available mentions the occasional production of disease simulating typhoid fever by *B. faccalis-alkaligenes*, but details are lacking. For this reason it has seemed worth while to report this case.

The laboratory work was carried out by Miss Anna Dean Dulaney, Assistant in the Public Health Laboratory, University of Missouri.

REPORT OF A CASE OF ATRESIA OF THE ILEUM WITH MICROCOLON *

MAURICE KAHN, M.D., LOS ANGELES

This case is of sufficient rarity, I think, to justify recording.

REPORT OF CASE

I was called to operate for congenital intestinal obstruction on an infant boy, forty-eight hours after its birth. It seemed normal at birth, but soon it was noticed that the baby vomited everything given within a few minutes of its ingestion. No meconium had passed since birth, which, in the opinion of Dr. F. C. Ainley, the obstetrician in the case, indicated an absolute obstruction due probably to some congenital deformity. The abdomen was distended, with visible coils of intestine, though peristalsis was not discernible. On account of the distention of the abdomen with gas, and its being intestinal and not gastric, Dr. Ainley concluded that this must indicate that some material had passed through the pylorus, which would eliminate pyloric or duodenal obstruction. Dr. Henry Dietrich, the pediatrician who was called in consultation, was of the same opinion as Dr. Ainley. A proctoscopic examination made with a cystoscope failed to reveal any abnormality for a distance of 3 inches from the anus.

Operation was performed. The abdomen was opened by a left paramedian incision with the umbilicus at about its center, large enough to explore the entire abdominal cavity. Immediately distended coils of small intestine protruded and no effort was made to restrain them. They were caught in hot towels and well protected. It was then noted that the small intestine was normal aside from the distention, except the terminal 6 inches of the ileum, which showed a marked contraction in such a manner as to duplicate almost exactly in feel that of a string of beads. This contracted portion was about the size of an ordinary lead pencil, and did not dilate under rather harsh manipulation. It ended blindly, that is, it was not united at all to the cecum. The entire large intestine as far down as the sigmoid was represented by a tube about 3 mm. in diameter and looked like a small white cord. The sigmoid was a trifle larger, and the upper rectum about 8 mm. in diameter. The cecum was in the right fossa, and the entire large intestine was normally placed with normal mesocolon throughout its course. Prior to the operation the father of the infant stated to me that he very much desired a healthy child, but if the abnormality was such as would greatly handicap the child, then he preferred its death. While the outlook was not at all bright in the event of further surgery being performed, yet in deciding what course to pursue I asked myself what I should wish done if the child were my own—and I answered by closing the abdomen without making any effort at corrective surgery. The child died fifteen hours later.

COMMENT

Many theories have been advanced to explain the genesis of stenoses and atresiae, namely: (1) intra-uterine volvulus; (2) embolism or thrombosis of the superior mesenteric vessels; (3) pressure from tumors or from amniotic bands; (4) traction of the omphalomesenteric duct or its hyperinvolution; (5) intra-uterine peritonitis, and (6) persistence of the epithelium occlusion and ingrowth of the mesenchyma.

In the case herewith reported there was no evidence, such as twists, bands or agglutinated coils of intestine, supporting any of these theories. It seems to me that with the exception of the epithelium occlusion theory, all the foregoing postulations may be discarded as more or less fanciful hypotheses unless postmortem findings supply the evidence. Moreover, there is assumed in these theories, excepting the last one, a prenatal pathologic condition, which is always a repellant explanation to the scientific investigator, whereas an evolutionary theory is attractive and respectfully entertained.

Having recognized that the duodenal lumen in young embryos is normally completely obliterated by epithelium forming a solid cord of cells, Tandler[1] concluded that sometimes this atresia may persist and be found as a congenital occlusion or stenosis. Forssner[2] found that in early embryos the lumen of the duodenum was completely obliterated in places. This normal epithelium occlusion of the duodenum disappears by a process of disintegration leading to vacuolation. Forssner thinks that this epithelium occlusion may take place throughout the small intestine. Tandler considered that the cause of the occlusion was the resistance exerted on the expanding epithelium by the surrounding mesenchyma. Moreover, when the epithelium occlusion is followed by sufficient ingrowth of mesenchyma, complete mesenchymal occlusion occurs and this condition may be permanent. Or by subsequent changes a stenosis may develop or valve formation occur.

1111 Brockman Building.

* Read before the Western Surgical Association, Dec. 4, 1920.

REPORT OF A CASE OF ANAPHYLAXIS FOLLOWING AN INTRADERMAL PROTEIN SENSITIZATION TEST *

H. J. GERSTENBERGER, M.D., AND J. H. DAVIS, M.D., CLEVELAND

During July, 1919, one of us was called in the absence of the family physician to see, in the words of the mother, "whether it were not possible to change something in the diet or care of her child that would remedy or lessen the irritated condition of the skin and the wheezing heard during breathing."

The child was a well developed and well nourished boy, aged 12 months, with signs of a mild rickets, a prominent forehead, and slight enlargement of the wrists. There was a distinct but mild dry eczema of the face, chest and arms, causing, as one could see from the many scratch marks, a great deal of itching; and there was a decided emphysema accompanied by wheezing and a somewhat labored expiration. The spleen was not palpable and the posterior cervical lymph nodes were somewhat increased in size and number, as is usually the case in exudative children. The skin symptoms were first noted by the mother when the child was about 7 months of age, while the respiratory difficulty never, until recently, made the impression on her of a decided abnormality, although she recalls now that since the boy was about 2 months old she noticed that there was something about his breathing that was not just right.

The boy was breast fed until about 3 weeks of age. Then he was fed a Walker-Gordon mixture by the family physician, and at the age of 9 or 10 months he was given straight milk with vegetables. He received orange juice early, but was given neither eggs nor potatoes. When the eczema developed the diet was changed in various ways without definite results, and so the family physician consulted a dermatologist.

The skin at that time is reported to have evidenced a marked moist eczema, which improved but was replaced by a dry, scaly, itchy skin which remained uninfluenced by further treatment until June, 1919, when it improved without any special change in the diet or treatment.

When seen one month later at the age of 12 months, it was advised that he be given less food, skimmed milk as the basis of the diet, atropin sulphate in 1:1,000 solution, gradually increasing the drop doses to the point of physiologic reaction, and a 10 per cent. tricalcium phosphate in cod liver oil. A cutaneous protein sensitization test was suggested at this time in case the therapeutic measures instituted should be of no avail.

However, a decided improvement in the skin and chest symptoms was soon noticed by the mother and nursery maid. The diet was kept the same in quality, but increased in

1. Tandler: Morphol. Jahrb. 29: 187, 1900.
2. Forssner: Anat. Hefte 34: 1, 1907.

* From the Departments of Pediatrics of Lakeside Hospital and of Western Reserve Medical School.

quantity to meet the appetite of the child without causing an increase in the symptoms. The latter, on the contrary, continued to grow less and less, and at times seemed, at least to the mother and nursery maid, to be entirely absent.

The nursery maid who had constant care of the child was convinced in her own mind that the atropin was responsible for the improvement, for not only had she noticed that the child began to improve after the atropin had been started, but she also felt that return of the symptoms occurred when the atropin was reduced or stopped, as occasionally happened.

The family physician returned in August, 1919, found an increased thymic dulness, and requested a roentgen-ray examination of the chest. A wide shadow was found in the thymic area which the roentgenologist pronounced an enlarged thymus. Consequently, the family physician stopped the atropin and had the thymus roentgenized once every three or four weeks for five times. The condition of the child became worse instead of better, and the thymic shadow remained the same, so that the roentgenologist advised against further exposure. The family physician then reordered the atropin in the form of belladonna in small doses. The child improved once more, and gradually during the latter half of November breathed, according to the family, in an almost normal manner.

During the first days of December he developed a severe cold, and as a result had a severe asthmatic attack during the night of December 3. On the following morning he was seen in consultation with the family physician, and then admitted to the pediatric service of Lakeside Hospital for diagnosis and treatment.

His condition seemed worse then than at any previous time. Especially was the cyanosis decided on slight exertion, and this was accompanied by an increase in the shortness of breath. At the hospital his diet was again built around skimmed milk, the atropin was reordered in large doses, and the cod liver oil was continued. In forty-eight hours there was a distinct improvement in the shortness of breath and the degree of cyanosis, although increased activity was still able to increase both symptoms.

The tuberculin and Wassermann tests were negative, although the former showed a slight swelling which, however, was so uncharacteristic of the regular positive intracutaneous tuberculin test that it was considered to be due to the local trauma. The blood count was 4,960,000 red cells and 15,000 leukocytes, with hemoglobin, 90 per cent. The differential count gave 35 per cent. polymorphonuclear neutrophils, 51 per cent. small lymphocytes, 7 per cent. large lymphocytes, 6 per cent. transitional cells, and 1 per cent. eosinophils.

The boy's brother had been exposed to whooping cough and the patient had therefore received from the family physician two injections of pertussis vaccine. A third one was given him on the second day during his stay at the hospital.

December 5, the roentgenogram showed a decidedly smaller shadow than the last one taken during October. In fact, the shadow was quite like that of a normal child. In consequence, the family physician was convinced that the recent improvement noticed during November was really due to the reduction in size of the thymus and not to the influence of the atropin. He was especially convinced of this because, Nov. 10, 1919, he had his assistant perform cutaneous scratch tests with different proteins in simple saline solution, which all proved to be negative. No potassium hydrate was used.

The proteins used were: wheat, cow's milk, rice, potatoes, egg white, beef, oats, tomato, horsehair, pneumococci, staphylococci and ragweed. However, as I recently had had the same negative experience with the scratch method in the case of another asthmatic child, and a positive result with the intracutaneous method, it was decided to apply the latter method to this child also, before concluding that the entire clinical picture in this case was due to an enlarged thymus and not to a state of sensitiveness to proteins or to an exudative diathesis, vagotonia or status lymphaticus.

INTRACUTANEOUS SENSITIZATION TESTS

December 8, intracutaneous protein sensitization tests were made with oat protein, cow's milk casein, egg yolk allergen and egg albumin, preceded by a control with physiologic sodium chlorid solution. The solutions used at the first as well as at the later tests were all made in the same approximate manner so that they were probably about the same strength. Later on a scientifically accurate determination was made of the protein contents of a solution made up as closely like the original solution as it was possible to do, with the result of a finding of 1.2 per cent., so that a variation of from 1 to 1.5 per cent. might be probable. From 0.1 to 0.2 c.c. was injected, enough to make a wheal varying in size from a lentil to a match head. The child cried from the beginning of the injections, which consumed more time than was really necessary, owing to the fact that the solutions were prepared between the individual injections.

It was noticed as the injections went on that the cyanosis was distinctly increased; but no alarm was felt, as it was customary for the patient to become mildly cyanosed on slight exertion, and this experience was considered to be more than "slight exertion," and therefore caused no astonishment in the production of a more marked cyanosis.

The first injection was the control with physiologic sodium chlorid. Then followed in order, oat protein, cow's milk casein, egg yolk allergen, and egg albumin. After the egg yolk allergen had been injected and while the egg albumin was being administered, the cyanosis and dyspnea suddenly became severe and extreme. Epinephrin was immediately administered subcutaneously in repeated doses, totaling about 1 c.c. While the respiratory difficulty was at its worst, a pale swelling about the size of a quarter of a dollar was seen at the seat of the egg yolk allergen and egg albumin injections.

The areas of administration of the oat protein and cow's milk casein were absolutely negative. As the cyanosis and dyspnea, except for the final extreme severe period, developed slowly and gradually during the periods of injection, it was our impression that the aggravated condition of the child was not due to a condition of anaphylaxis, but rather was the result of the increased physical effort in struggling.

We imagined that we had produced a severe and acute mechanical emphysema by forcibly pumping the child's lungs full of air beyond the relative constriction of the bronchioles, which, of course, was known to have existed from the beneficial effects that atropin had had on the child's condition before the injections had been made.

The power of the factors of expiration being smaller than those of inspiration, one could understand how gradually with each inspiration more air could have been forced into the lungs than was let out during expiration, resulting finally in the fixation of the chest in the inspiratory phase. On the following day, however, the child developed a very marked and general urticaria, which required for its improvement hypodermic administration of epinephrin. The appearance of this symptom made the diagnosis of anaphylactic shock more probable as the cause of the acute difficulty of the day before.

Nevertheless, it was decided after a few days of rest to repeat the test, but modify the procedure by having the syringes ready and loaded with the proper solutions in order to use as little time as possible and avoid undue exertion on the part of the child. This idea was carried out further by reducing the number of proteins to be tested to three.

REPETITION OF TESTS

December 11, cow's milk allergen, cow's milk casein and cow's milk albumin were injected in the same solutions as were used in the first observation. One of the lesions showed a pale swelling; but on the following day a raised red indurated area, about the size of a bean, was seen at the seat of the cow's milk allergen injection, while the cow's milk casein and cow's milk albumin showed only a very faint and slight induration which was considered absolutely negative.

The test was performed in a very short period of time, and caused the child only slight difficulty and annoyance.

On the following day, December 12, the proteins of orange, tomato and strawberry were injected in the same manner and with the same rapidity as on the previous day. No urticarial wheals were seen, and only a slight induration, such as was noticed at the seat of the cow's milk casein and cow's milk albumin injections of the day before, was observed at the point of administration of the tomato. No reaction at all was found where the strawberry and orange proteins had been

applied. The technic again worked perfectly, and the child went through the tests with only slight difficulty.

As a result of the good experiences of the last few days, it seemed as if possibly, after all, the mechanical factor of an acute emphysema produced as the results of the prolonged exertion and crying of the child had been mainly responsible for the extreme condition of the first day. Of course, the factor of anaphylaxis could not be excluded, and so it was decided to inject only one of the two proteins which produced urticarial wheals on the first day, namely, egg yolk allergen and egg albumin. The former was chosen and was injected the following day, December 13, quickly and carefully without any difficulty or inconvenience to the child.

The resident physician who had performed the injection remained for a few minutes and then left. The nurse had placed the child in bed, and after about five minutes went out of the room for some water. She returned immediately and discovered the child breathing with the greatest difficulty and extremely cyanotic. The resident physician was called and found the child in a state of apnea and marked cyanosis. He administered epinephrin and started artificial respiration. A total of 2 c.c. of epinephrin was injected subcutaneously. The child recovered. A large urticarial wheal was seen at the point of the egg yolk allergen administration and likewise at the areas which on the first day, December 8, had shown urticarial wheals, namely, the point of injection with egg yolk allergen and egg albumin.

COMMENT

This experience settled beyond question that the extreme condition of the child, December 8, was due to anaphylaxis, and that the mechanical emphysema, which from the clinical picture did exist to a medium degree before the administration of the egg proteins, was at most a minor factor. The child had never received egg in any form, so we are justified in assuming that this hypersensitiveness was congenital.

The family history regarding the older brother, the parents and the grandparents is negative to asthma, eczema and hayfever.

Although the amount of protein administered at the individual injections was small, it nevertheless must be admitted that the dosage was probably somewhat above the upper limit of safety for a child of this type. However, we believe that had we injected one tenth or one twentieth of the amount used, which would have been beyond all criticism, we still should have witnessed the development of a severe and serious anaphylactic shock.

We appreciate now more than ever the value of epinephrin, not far away but close at hand. Had these tests been made at home and in the absence of epinephrin, we should have reported today a fatality instead of a recovery.

It is of interest to note that the first anaphylactic shock of December 8 did not prevent the production of the second on December 13. In other words, this boy did not develop a state of anti-anaphylaxis as a result of his first anaphylactic shock.

December 16, another roentgenogram of the thymic region was made, and it showed an abnormally wide shadow. The technic employed as to the position of the child and the condition of the tube was proper and the same as used in previous exposures.

A fluoroscopic examination demonstrated that this seeming contradiction in the roentgenogram depended on the phase of respiration in which the picture was taken, a picture made during extreme inspiration giving a practically normal shadow and one taken at extreme expiration a markedly abnormal one, as large as, if not larger than that recorded in the plates of Aug. 5, 1919.

Poisoning from Hexamethylenamin.—E. S. Weiler warns in the *Revista Médica del Rosario* of the possible cumulative action from this drug. He reports a case of acute cholecystitis in typhoid fever in which he gave 2 gm. by the vein every twelve hours. Symptoms of severe toxic action developed after the ninth injection, with loss of consciousness and incontinence for five days, with hematuria for a month. Micturition was painful for a time.

A SIMPLE METHOD FOR COUNTING BLOOD PLATELETS *

M. A. VAN HERWERDEN, M.D., UTRECHT, HOLLAND

In a recent publication, Oluf Thomsen[1] of the Statens Serum Institut in Copenhagen described a method for the counting of platelets in human blood, by which the blood is collected in sodium citrate and the platelets thus held in suspension are counted in a Thoma-Zeiss apparatus.

The statement made by Thomsen, that other methods are either inaccurate or too complicated for use, has induced me to describe a simple method, worked out some years ago, which has been employed with good results in the work of H. G. Langemeyer.[2]

According to Thomsen's method, an amount of 4.5 c.c. of blood obtained by venesection is allowed to stand from two to three hours, until the red blood corpuscles settle at the bottom. A part of the plasma with the suspended blood platelets is collected in a graduated pipet, and a drop of the mixture is placed in a Thoma-Zeiss apparatus. The advantage of Thomsen's method over others is that it gets rid of the red blood corpuscles, which constitute a real impediment in the counting of the platelets. But its disadvantage lies in the volume of blood required: instead of a single drop of blood drawn by pricking a finger tip, it is necessary to draw 4.5 c.c. by venesection. Another disadvantage is the somewhat complicated reckoning necessitated by the fact that the plasma which remains with the sedimented cells is a variable factor.

The method that I have devised is based on the well known fact that red blood cells are permeable for urea, and the observation that the platelets are preserved and clotting is prevented by the substance. A concentrated urea solution, diluted with an isotonic salt solution, forms a hypotonic medium in which the red blood corpuscles hemolyze. In this way it is possible to get rid of the erythrocytes, while the thrombocytes, which are prevented from clotting by the urea solution, are rendered visible and appear in the Thoma-Zeiss apparatus as small corpuscles. They may then be readily counted.

EXACT PROCEDURE

Twenty-one parts of a 10 per cent. urea solution in water is mixed with nine parts of 0.9 per cent. sodium chlorid solution, and the fluid is drawn up to the 0.6 mark of a Thoma-Zeiss pipet for counting white blood corpuscles. Blood is drawn by pricking the finger tip with a needle, and the first drop is wiped off. The mixture in the pipet is allowed to flow out onto the small wound until the level of fluid within the pipet has fallen to 0.4. A second drop of blood is allowed to flow from the wound directly into the drop of urea-sodium chlorid mixture. The blood and urea mixture is then taken up by the pipet until the mark 1 on the scale is reached. If the single drop of blood is not sufficient, more blood is taken from the wound until this level is secured in the pipet. The pipet is then filled with the urea-sodium chlorid solution up to the mark 11. In this way the pipet will come to contain 0.4 parts of blood. After gentle shaking for five minutes, the fluid in the capillary portion of the pipet is discarded, and 2 drops from the bulb are placed in counting chambers. It will be found that the red blood corpuscles have disappeared completely, or that only a few remain. The leukocytes and blood platelets are distinctly visible, the latter as round or oval disks. After standing for thirty minutes they may be readily counted in f. i. 10 x 20 quadrants.

COMMENT

By means of this method it is possible in a short period of time to count the platelets contained in a small drop of blood. Relatively high powers of the microscope may be used if a thin cover glass is employed in place of the usual thick one of the Thoma-Zeiss apparatus.

The largest number of platelets counted by this method in human blood taken from males was 326,000 per cubic millimeter, and the smallest number was 217,000.

---

* From the Rijks-Universiteit.

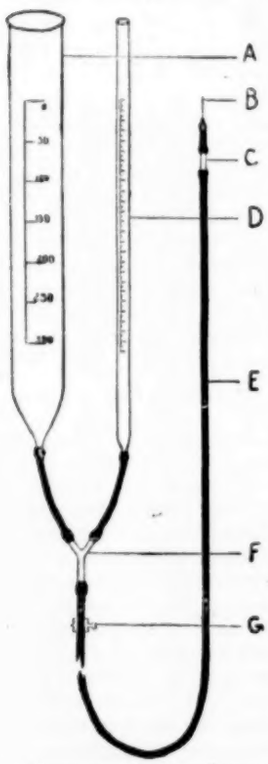
1. Thomsen, Oluf: Comp. rend. Soc. de biol. **83**: 505, 1920.
2. Langemeyer, H. G.: De Bloodplaatjes van den Mench, diss. Utrecht, 1916.

In blood taken from women during the intermenstrual period, the numbers were 350,000 and 221,000. During the latter days of menstruation, higher numbers have frequently been recorded. Two determinations, made an hour apart, on blood from the same person but from different finger wounds, gave 365,100 and 370,200 per cubic millimeter. These high figures, however, must be attributed to the influence of menstruation, as the intermenstrual determinations on the same person gave figures ranging between 300,000 and 330,000. This example is quoted to show the relatively small variations in readings obtainable by this simple method.

APPARATUS FOR CONTINUOUS INTRAVENOUS ADMINISTRATION OF FLUIDS BY WHICH THE RATE OF FLOW MAY BE EASILY DETERMINED AND CONTROLLED

Hugh F. Freidell, M.D., Santa Barbara, Calif.

The apparatus consists essentially of a 300 c.c. container such as an arsphenamin tube, a small buret, 6 feet of rubber tubing, a glass Y tube, screw clamp, small glass tube for window, and needle. It is assembled as shown in the accompanying diagram.



Apparatus for continuous intravenous administration of fluids: *A*, arsphenamin tube; *B*, needle; *C*, glass window; *D*, 25 c.c. buret; *E*, rubber tubing; *F*, glass Y tube; *G*, metal screw clamp.

The rate of flow is determined by pinching off the tube from the large container with the thumb and finger, and noting how many cubic centimeters are delivered per minute from the small buret. It is controlled by the elevation of the container and adjustments of the screw clamp. At any time during the administration the rate of flow may be determined in like manner and regulated by adjusting the screw clamp.

METHOD OF USE

In the apparatus as used by the author, the container and buret are attached to the metal tray of an ordinary copper sterilizer by strong spring clamps. One handle of the tray is used to suspend the apparatus; the other is folded down out of the way. The solution is kept at body temperature by passing a few coils of the rubber tubing through the pan of the sterilizer containing warm water. The needle is immobilized in the vein by a collodian seal and adhesive strips.

THRUSH COMPLICATED BY ACUTE POLYARTHRITIS IN AN INFANT

Morris Goldring, M.D., Brooklyn

Baby D. K., aged 5 months, who had been breast and bottle fed, was restless, cried, and was unable to nurse. There was no history of previous illnesses. The family history was negative so far as gonorrhea and syphilis were concerned.

Examination revealed small white flakes resembling coagulated milk that could not be wiped off, situated on the tongue and the inner surface of the cheek. The mouth was dry and the lips were markedly injected. There was no glandular involvement; the pulse was rapid; the temperature was 104.

I instructed the mother to cleanse the mouth with a solution of sodium bicarbonate after each feeding, and apply carefully a 1 per cent. dilution of liquor formaldehydi twice a day. The rubber nipple was kept in a solution of boric acid. The baby also received a thorough cleansing of the gastrointestinal tract.

The following day the temperature was still 104, the baby now having a hoarse cry and vomiting all food. After examination, I noticed extension of the flakes into the pharynx. The baby was unable to sleep and refused all foods.

Two days later, the patient developed diarrhea, which consisted of a semifluid stool, the bulk made up of cheesy flakes. This condition, however, improved with high alkaline enemas.

The condition showed gradual improvement, and the mouth cleared within one week after the onset of the disease. The temperature fluctuated between 102 and 104, and the baby cried when moved.

After careful examination, I noticed the left ankle red, swollen and extremely tender. Simultaneously the left knee and left wrist showed the same signs. Wet dressings were applied continually, and hot colonic irrigations were given every four hours. In three days the swelling began to subside, and within one week, there was complete recovery.

It may be of interest to note that the twin sister of this patient also developed thrush at the same time, but recovered completely within six days without any severe constitutional disturbances.

SUGGESTIONS FOR IDENTIFICATION OF BLOOD GROUPS

Robert W. Belknap, M.D., Cambridge, Mass.

It may be of interest in view of recent articles in The Journal by Karsner[1] and again by Unger,[2] to note a few practical modifications of the microscope slide method of identification of blood groups which I have found useful. The classification used below is that of Jansky, which has recently been recommended for universal adoption in place of the more familiar one of Moss, on the grounds of priority.

Perhaps the rather obvious fact has not been sufficiently emphasized that if the laboratory worker happens to belong to either Group II or III, he has at hand the means of grouping all other blood. The chances of belonging to one or the other of these groups is, according to Karsner's table of distribution of groups, about 52 per cent., and that of finding a suitable group in another individual who would be readily available, especially in a hospital would, of course, be excellent. In this method, besides the usual drop of blood in citrate-salt solution, it is necessary to take a small amount of whole blood from both the known and the unknown person. Enough can easily be obtained, in small glass tubes, from the ear lobe. This tube is then centrifugalized for a few minutes within a larger centrifuge tube until the serum becomes supernatant, when it can be drawn up as needed in a fine capillary pipet. The actual matching of bloods, which is easily understandable, would follow the schemata in Chart 1 if the known is Group II, or Chart 2 if the known is Group III. In either case a mixture of known cells-unknown serum and known serum-unknown cells is made at opposite ends of a slide.

	I	II	III	IV
Unknown serum; cells II.....	+	0	+	0
Unknown cells; serum II.....	0	0	+	+

Chart 1.—Identification of blood groups when the known blood is of Group II.

	I	II	III	IV
Unknown serum; cells III.....	+	+	0	0
Unknown cells; serum III.....	0	+	0	+

Chart 2.—Identification of blood groups when the known blood is of Group III.

Advantages of this method are that it is not necessary to have Group II and Group III serums on hand with the attendant difficulty of finding the rare Group II blood, and that the serum is always fresh. On the other hand, it is not quite so rapid in an emergency.

1. Karsner, H. T.: Laboratory Problems of Blood Transfusion, J. A. M. A. **76**: 88 (Jan. 8) 1921.
2. Unger, L. J.: Precautions Necessary in the Selection of a Donor for Blood Transfusion, J. A. M. A. **76**: 9 (Jan. 1) 1921.

Another method which I have found useful when it is possible to keep known serums on hand utilizes Group I in addition to the usual Groups II and III. It forms somewhat of a confirmatory test and conserves the supply of the rare Group II. In this test it is often possible to identify Group I with only one serum-cells mixture (in 43 per cent. of cases). This may be represented as in Chart 3, in which C indicates unknown cells.

C + I = 0	Group I
C + I = +; C + III = 0	Group III
C + I = +; C + III = +; C + II = 0	Group II
C + I = +; C + III = +; C + II = +	Group IV

Chart 3.—Method when Group I also is utilized: C, unknown cells; +, agglutination; 0, no agglutination; I, II, III, respective serums.

By proceeding in this order the common groups are identified or eliminated first, and it will be seen that from the probabilities the chance of having to proceed to the second test is 58 per cent., and to the third, 16 per cent., so that on the average there is somewhat less manipulation than when using only Serums II and III, and in addition there is always the valuable check of the use of the strongly agglutinative Serum I.

I have used serum sealed in small "home made" ampules and have a very active Group II after eight months without other preservative than aseptic precautions while collecting and tubing.

1 Mercer Circle.

A SHORT SILVER IMPREGNATION METHOD FOR THE DEMONSTRATION OF SPIROCHAETA PALLIDA IN TISSUE *

SAMUEL R. HAYTHORN, M.D., PITTSBURGH

Within the last few years a number of methods for lessening the time required for the demonstration of *Spirochaeta pallida* in tissues have been reported. Eyenes and Sternberg [1] applied a silver method to frozen sections, which has found favor in several laboratories. Warthin and Starry [2] have reported two methods for applying silver solutions to sections mounted on cover glasses, and they report excellent results. To my mind, however, there is still a place for a short silver impregnation method.

For several years I have been applying a modification of Levaditi's method in which the reagents were dissolved in acetone for the purpose of hastening penetration. The principle of action is based on the alternate dehydration of the tissues by the acetone and the return of the tissue blocks to solutions containing considerable water. The processes of infiltration and dehydration are carried out simultaneously so that much time is saved.

Recently we have had a large amount of acute syphilitic material and have had ample opportunity for experimenting with the acetone silver method on known positive tissues by varying the strengths of the solutions, and the time of application necessary for each. We therefore recommend the following modification of Levaditi's silver impregnation method [3] on the grounds that it is quite as reliable as the usual technic and can be completed in about sixty hours, or at least, in the time required for the embedding of tissues in paraffin for ordinary microscopic examination.

TECHNIC OF THE ACETONE-SILVER METHOD

Pieces of tissue from 2 to 3 mm. in thickness are fixed in 10 per cent. formaldehyd solution for eight hours or more. Over night gives excellent results.

The pieces are placed for about ten minutes in warm distilled water (from 50 to 60 C.).

The pieces are laid on clean filter paper just long enough to take off the excess of water.

They are placed for one-half hour in chemically pure acetone.

The pieces are incubated for eight hours, or over night, in Solution 1.

They are removed from Solution 1, touched to clean filter paper, and transferred to a clean bottle containing freshly prepared and filtered Solution 2.

They are allowed to remain in Solution 2 for from six to eight hours, and then passed through the following solutions in the order named: absolute alcohol, two hours or more; cedar wood oil, one hour; xylene, one-half hour; paraffin, two hours. Then they are blocked.

The sections are cut as thin as possible, and the first ten or fifteen are discarded because the tissue is thoroughly penetrated and there is sometimes a precipitate on the surface.

All traces of paraffin are removed with xylene and the sections are mounted in balsam.

PREPARATION OF SOLUTIONS

SOLUTION 1

Ten per cent. silver nitrate solution	5 c.c.
Acetone (C. P.)	10 c.c.
Distilled water	5 c.c.

Mix just before use and filter.

The silver solution should be prepared frequently, although a 10 per cent. solution will keep for two or three weeks in a tightly stoppered, dark brown bottle. The advantage of using a 10 per cent. stock solution of silver nitrate is that Solution 1 can be varied from 1 to 5 per cent. by changing the relative amounts of stock solution and distilled water used. Beautiful differentiation was obtained with a first solution containing as low as 1 per cent. silver nitrate on a specimen containing great numbers of spirochetes; but for diagnosis of unknown specimens the 2.5 per cent. solution, as recommended, gave the more reliable results.

SOLUTION 2

Pyrogallic acid	1 gm.
Acetone (C. P.)	25 c.c.

Mix and filter.

RESULTS

The picture obtained by the use of the acetone silver method is practically the same as that obtained with Levaditi's method. The spirochetes appear very black, and in a few instances positive results were obtained with the acetone silver infiltration when Levaditi's method was negative.

The great advantage of the method is that it may be carried out within three days, and when the fresh tissue is received early in the morning, it may be made ready for examination on the second day following.

Sandusky and Park Way.

* From the William H. Singer Memorial Research Laboratory.

1. Eyenes and Sternberg's Method for Staining Treponema Pallidum in Sections, Mallory and Wright: Pathologic Technique, Ed. 7, Philadelphia, W. B. Saunders Company, p. 402.

2. Warthin, A. S., and Starry, A. C.: Rapid and Improved Method of Demonstrating Spirochetes in Tissues, Am. J. Syph. 4: 97 (Jan.) 1920; Second Improved Method for the Demonstration of Spirochaeta Pallida in the Tissues, J. A. M. A. 76: 234 (Jan. 22) 1921

3. Levaditi's Method for Staining Treponema Pallidum in Sections, in Mallory and Wright: Pathologic Technique, Ed. 7, p. 401.

PNEUMOPERITONEUM AS A LAPAROTOMY ADJUNCT

ROBERT EMMETT FARR, M.D., MINNEAPOLIS

Pneumoperitoneum is now one of the established adjuncts to the diagnosis of abdominal conditions. Its apparent comparative safety, simplicity and helpfulness are sure to cause this method of examination to be widely adopted, provided, of course, it is found that no untoward results follow its use.

In our abdominal work we have made use of pneumoperitoneum for the purpose of excluding movable viscera, especially small intestines, from the operative field. To illustrate: In pelvic work one may by using a preliminary pneumoperitoneum and the Trendelenburg position, combined with anesthesia which abolishes muscle reflexes, find the pelvis completely free from intestines. A left or right lateral tilt will offer the same advantages in work in the lateral halves of the abdomen. In the upper abdomen the reverse Trendelenburg with the pneumoperitoneum effectually excludes from this region the small intestines, allowing one to make a visual examination by the addition of vertical retraction of the abdominal wall.

301 Physicians and Surgeons Building.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, MARCH 12, 1921

THE MEDICAL TREATMENT OF GASTRIC ULCER

Except in those cases that are adjudged to require surgical intervention, the management of gastric ulcer is essentially one of careful dietary consideration. Opinions as to the preferable procedures have been sharply conflicting, in accord with differing views as to the most important contributory factors leading to the symptoms, and with respect to the influences that promote healing. Consequently, the medical treatment of gastric ulcer differs widely in the hands of different clinicians, each of whom consciously or unconsciously appeals to a well defined physiologic principle in support of his efforts. On the one hand are the advocates of complete physiologic rest for the upper digestive tract, even rectal alimentation being avoided because it tends reflexly or otherwise to provoke gastric secretion or peristalsis. Such a regimen means starvation, a condition not preeminently favorable to the healing of any tissue lesion. At the other extreme are those who balance the advantages of the nutritive resuscitation promoted by more liberal diet against the local irritation which the requisite food may cause. It has been described as a choice between the devil and the deep sea. Sippy of Chicago has devised a widely followed form of alkaline treatment with selected diet. Realizing the irritating or corrosive action of acid gastric contents on ulcers that would tend to heal spontaneously, Sippy's plan aims at continuous neutralization during the period of gastric digestion by proper food and alkalis, and the removal at night of any products of continuous hypersecretion. Transgastric or duodenal feeding has also had its adherents.

It seems almost superfluous to add to the numerous therapeutic advices which attempt to steer between the disadvantages of excessive secretion, peristaltic rest, and starvation, respectively. Coleman has recently asserted that none of the diets heretofore employed successfully fulfil the two main indications for treatment, namely, to protect the ulcer from mechanical and chemical injury, and to maintain the nutrition of the patient at a level which will favor the healing of the ulcer. He aims, therefore, to select foods which, because of peculiar individual properties, will give a larger protection to the ulcer. As some others have done, Coleman [1] attains complete rest for the stomach during from three to five days through the use of glucose enemas—300 c.c. of a solution of from 7 to 12 per cent. by rectal drip, three or four times a day. The quantity of water is sufficient to prevent thirst. Protein and fat are not added to the enemas because of the doubt of the absorption.

According to the dictum of Pawlow, egg albumin alone does not call forth gastric secretion, and "fats" inhibit it. Coleman therefore regards these foods as peculiarly suited to the conditions imposed by a gastric ulcer. Oils may even act like demulcents to protect denuded surfaces. In Coleman's plan, olive oil is given at first in moderate but gradually increasing quantities, up to a total of 150 c.c. a day, 1,395 calories. The whites of two or three eggs a day are added shortly after the oil is begun and increased to five or six—from 7 to 8 gm. of nitrogen and 450 calories. The 100 gm. of glucose, given by rectum throughout the treatment, brings the energy intake to 2,200 calories a day. The procedure is continued for three or four weeks. The scheme makes an appeal as being physiologically rational, and its adherents assure us that it has gained successes. It is true, however, that diverse other procedures produce similar successes, and it must ever be remembered that nature is a beneficent helpmate to damaged tissues.

THE SIGNIFICANCE OF BLOOD PLASMA VOLUME

The accurate study of blood volume in its possible relations to pathologic conditions is one of the more recent developments of progressive clinical medicine. As the blood is made up of two unlike components, the plasma amounting to approximately 55 per cent. of its weight, with a residual 45 per cent. of corpuscles, it is evident that changes in either of these factors may suffice to alter the quantitative composition of the entire mass. On this account mere estimation of the corpuscular content or the quantity of hemoglobin in the blood will not give a true picture of the volume changes in the blood; for it by no means follows that alterations in the cellular components are accompanied by either corresponding or compensating changes in the volume of fluid in which the cells are suspended.

Accordingly, new procedures, notably the dye method proposed by Keith, Rowntree and Geraghty,[2] have come into vogue. With their special technic they secured remarkably constant results on normal persons, the total blood mass averaging 8.8 per cent., or 1/11.4 of the body weight in a series of eighteen men. Working at the Medical Clinic of the Massachusetts General Hos-

1. Coleman, W.: A New Diet for Gastric Ulcer, Proc. Soc. Exper. Biol. & Med. **18**: 43 (Nov. 17) 1920.
2. Keith, N. M.: Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med. **16**: 547 (Nov.) 1915.

pital in Boston, Bock [3] obtained almost identical results. Both groups of clinicians have reported essentially identical figures, 5 per cent., or one-twentieth, as the average plasma volume expressed as a fraction of the body weight.

It is superfluous to call attention to the wide variations which the corpuscular volume and the hemoglobin content of the blood may undergo as the result of injury or disease. Apparently, marked shifts may also occur in the distribution of the red corpuscles into and out of the peripheral circulation so that the fluctuations in their mass may be quite unexpected. According to Bock, however, even in the midst of great variations in the corpuscular mass the plasma volume of the blood is surprisingly constant. In the studied cases of edema associated with cardiac and renal disease there has been no shift of increased fluid into the blood, but the balance between plasma and tissue fluids was maintained through such an interchange of fluid and dissolved substances as to maintain the fluid phase of the blood at about its normal level. These facts mean, therefore, that variations in the total blood volume per kilogram of body weight are due for the most part to changes in the corpuscle content of the blood. After acute hemorrhage, in which changes in blood volume are commonly reported, it has been shown by Bock that ordinarily rapid dilution of the plasma volume to its former normal level occurs and that it remains constant thereafter, even though the total blood volume may be much reduced by reason of loss of red corpuscles.

It should not be concluded that alterations in plasma volume never occur. The data from hemorrhage and shock, diarrheas of the severe types encountered in cholera, edema of the lungs, and the cases recently described by Marriott [4] under the caption of anhydremia in children, point to actual changes in plasma volume. The severity of the symptoms in such conditions is presumably attributable to the dehydration of the tissues in the effort to meet the requirements of the blood plasma. Consequently, one aim of effective therapy should be to restore the lost fluids and avert the danger of tissue desiccation. Stable plasma volume apparently is an expression of the effort of the organism to secure an equilibrium between cells and plasma —an adjustment that is ordinarily as prompt as is the neutrality regulation of the organism. As Bock states, the physicochemical relations existing between the blood and tissues of the body form a series of complex phenomena that is disturbed only with difficulty. It seems reasonable to suggest, Bock adds, that the plasma volume must be free from great alterations from the normal, in quantity, if cellular activity is to proceed at an optimal rate. While absolute fixation of the plasma volume cannot occur in the nature of things, the considerations reviewed above indicate only a narrow range for the volume changes that may occur. Diagnostically, the alteration of plasma volume (rather than merely total blood volume) is indicative of a seriously abnormal physiologic situation that demands relief because the normal adjustments between blood fluid and tissue reservoirs can no longer be properly secured. Therapeutically it points to the necessity for effecting a normal tissue fluid reserve; for, as Bock has maintained, when such a reserve is present, the blood plasma volume tends to remain at a normal physiologic level.

3. Bock, A. V.: The Constancy of the Volume of the Blood Plasma, Arch. Int. Med. **27**: 83 (Jan.) 1921.
4. Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, Am. J. Dis. Child. **20**: 461 (Dec.) 1920.

FOOD AND THE CHILD

With the problem of an adequate food supply for millions of people in diverse parts of the world—in far eastern China as well as in central European Austria and Poland—brought vividly to our attention, has come the fundamental question of the nutritive requirements of the individual. It is futile to argue about surplus when millions are threatened with starvation. On the contrary, one is continually impelled to ask what are the minimal needs to preserve health, maintain strength and, if possible, promote working efficiency. Debates about the protein requirement, the fat minimum and other important details of nutrition have become overshadowed by the even more fundamental inquiry as to the amount of energy in the form of any available combination of foods absolutely essential to prevent human deterioration. The war time slogan, "Provide the calories and the protein will be provided thereby," has received renewed attention in these ominous days.

The food needs of groups of persons vary in relation to diverse factors, some of which are clearly recognized. Bodily activity is of fundamental importance. Work cannot be accomplished without supply and expenditure of energy in the human organism any more than it can be in a nonliving machine of human construction. The active worker must receive more food fuel than his sedentary neighbor. Aside from this, however, there is a fundamental requirement technically described as due to the "basal metabolism." Human calorimetry, a subject investigated with much enthusiasm and notable success by a number of scientists in this country, has at length furnished a wealth of data respecting the fundamental energy need of the body at complete rest. Upon the values thus derived, other supplementary needs must be superimposed. The working quota, the allowance for physiologic expenditure in digestion, the proportions set aside for special tissue repair or growth where this still occurs, the losses through the excreta—these are well appreciated additions to the basal needs.

It has been pointed out frequently of late in the columns of THE JOURNAL that a further factor of size, particularly in relation to age, has not always received the consideration which its rather unexpected signifi-

cance in nutrition demands. Only a few years ago it was customary to apportion the family food requirement on a theoretical basis according to a commonly used system of coefficients; for example, assuming that a man takes one portion, then a woman takes 0.8, a boy of 12 takes 0.8, a boy of 8 takes 0.7, and so on. For adults it may probably be said, with considerable approach to accuracy, that the basal metabolism of different individuals, such as a large man or a small woman, is roughly proportional to their size. Size is usually expressed as weight, but such expression is slightly inaccurate. The fat person, because his fat deposits are not an active part of the body, has a slightly lower basal metabolism for his weight than the thin person. Women have on the average a slightly lower basal metabolism than men of the same weight. It is now scientifically established, on the other hand, that children have a decidedly higher metabolism per kilogram than adults. Boys of 12 to 16 years average 25 per cent. higher than grown men. This does not include their greater energy production when active, but is due to their quickened life processes. Old persons have a slightly diminished metabolism.

A dietary survey of the food intake of children given a free range of choice tends to substantiate in a statistical way what the calorimeter has so clearly demonstrated by means of direct individual scientific measurements of the energy exchange. Holt and Fales [1] have lately reviewed the whole subject of the food requirements of the child during the entire growing period. From a critical study of the elaborate data now secured, they conclude that the food value normally lost in the excreta is a nearly uniform proportion of the intake, about 10 per cent., for all ages after infancy. The requirements for growth are greatest during the period when growth is most active, namely, during the first year of life and during adolescence. They are nearly uniform from the fourth to the tenth or eleventh years. The average for three factors—basal, growth requirements and food values lost in excreta—are nearly uniform for children of the same weight living under similar conditions. The requirement for activity is the only factor which varies widely with different individuals.

More concrete and of direct practical bearing are the added conclusions respecting the average calorific needs of children during the school age. Holt and Fales point out that the calory allowances must be decidedly higher than is generally assumed for the period of adolescence, particularly because of the high basal metabolism, the increased growth needs and the large requirement for the familiar muscular activity of youth. A dictum that may come with surprising force to many is this: The total daily caloric requirement of children of both sexes during adolescence exceeds by nearly 1,000 calories the requirements of the adult man or woman of moderate activity. Children who are underweight require more calories per kilogram than those who are of average weight for their age. Children who are overweight require fewer calories per kilogram than those of average weight. It is a common observation, says Holt, and an undoubtedly true one that during adolescence the average boy or girl takes more food than the average adult man or woman. Unquestionably, this represents a real physiologic need.

The exhortation to make the values for the daily food intake exceed adult standards during adolescence will lead to earnest thought on the part of many interested persons. Lately we have been warned against the dangers of overeating, inactivity and consequent obesity in the adult.[2] Evidently we shall do well to transfer the surplus in many cases from the account of the adult to the credit of the adolescent, for as Benedict, too, has concluded: "It is still the best practice to give a most liberal diet to children, since the greater part of the evidence on underweight indicates that children usually receive too little rather than too much food." Formerly one was warned about "sparing the rod and spoiling the child." Perhaps a corresponding adage might be promoted to warn us not to "spare the food and stunt the child."

1. Holt, L. E., and Fales, H. L.: The Food Requirements of Children, Am. J. Dis. Child. **21**: 1 (Jan.) 1921.

Current Comment

THE ALLEGED GERMICIDAL PROPERTIES OF MILK

More than thirty years have elapsed since Nuttall, investigating the mechanism of natural immunity, demonstrated experimentally that blood possesses the power of killing bacteria. Soon afterward the investigation of such bactericidal power was extended to other body fluids. A somewhat comparable phenomenon has been observed in the case of milk, but the explanation of what takes place has been the subject of active debate. The facts are these: When freshly drawn milk stands without being manipulated in any way, an apparent decrease in the number of bacteria that it contains takes place within a short time. This behavior is seen only in raw milk, never being observed in milk that has been heated to any considerable extent. With respect to the temperature at which the milk is deprived of this potency, opinions have varied. A number of bacteriologists have stated that the rapid decrease in the number of micro-organisms in raw milk is apparent rather than real. They ascribe the results actually observed to an agglutination of the bacteria present so that a smaller number of colonies may exhibit themselves in the modes of counting currently employed, although no fewer organisms are actually encountered. Should this be true, it would obviously be a misnomer to speak of the germicidal properties of milk. Chambers [3] has

2. Joslin, E. P.: The Prevention of Diabetes Mellitus, J. A. M. A. **76**: 79 (Jan. 8) 1921. The Danger of Being Too Fat, editorial, J. A. M. A. **76**: 523 (Feb. 19) 1921.

3. Chambers, W. H.: Bacterial Inhibition, I, Germicidal Action in Milk, J. Bacteriol. **5**: 527 (Nov.) 1920.

recently subjected the problem to a renewed investigation at the University of Illinois. The combined evidence of microscopic examination and plate count demonstrates a bactericidal property, or actual decrease in numbers of bacteria in raw milk under certain conditions. Part of the earlier discrepancies lay in the failure to recognize that the germicidal action is specific, depending on the individual animal and on the species of bacteria involved. In the freshly drawn mixed milk from a herd of cows, the bacterial inhibition may therefore be variable. When only the total number of micro-organisms in the milk is considered, a decrease in numbers may be evident, or one unaffected strain by its rapid increase may completely hide the germicidal action on another less numerous strain. Chambers suggests that the predominance of lactic acid forming organisms with the increasing age of the milk might be attributed to bacterial inhibition; for these organisms are apparently unaffected by it, increasing immediately from the start, whereas the other organisms seem to be restrained in growth and, in some cases, decreased in numbers. The germicidal property is destroyed by heating to from 80 to 90 C. (176 to 194 F.) for two minutes. Correlation between agglutinating and germicidal power has not been demonstrated. To explain the latter, one naturally thinks of a serologic origin; but this is at present nothing more than a vague hypothesis.

THE MOTILITY OF THE PYLORIC SPHINCTER

In a recent issue of THE JOURNAL,[1] the changing views with reference to the factors that control the opening and closing of the pyloric sphincter were reviewed. It was pointed out that the theory of the chemical control of this function which assumes that acid plays a decisive part in the normal behavior of the pylorus is being abandoned in the light of the growing evidence that such an hypothesis fails to conform to many of the known facts. It is always hazardous to advise the abandonment of long accepted conclusions until the evidence against them is sufficiently cogent and overwhelming to justify clearly a new point of view. An "open mind" is not necessarily synonymous with an iconoclastic attitude. Proof should supersede prejudice. The mode of action of an organ as important as is the stomach cannot fail to interest the physician. Hence we are impelled to report additional evidence in substantiation of the thesis that acid is not the principal factor controlling the opening and closing of the pyloric sphincter. Wheelon and Thomas[2] of the St. Louis University School of Medicine have succeeded in recording simultaneously the motor activities of the antrum and the pyloric sphincter, and in demonstrating that they are remarkably coordinated and in a high degree dependent on each other. It may be regarded as established that the antrum is an organ of special motility, the purpose of which is to mix the ingesta and bring them into contact with the gastric juices, and to propel the semidigested chyme onward into the duodenum. The direct graphic and roentgenographic observations of the St. Louis physiologists indicate that the phases of activity in the sphincter are such as to supplement those of the antrum; hence the motility of these two parts may be considered as constituting a cycle of the pars pylorica. The outcome is that the sphincter is open during the greater part of the antral contraction and actively closed while the antrum is relaxing. In other words, the behavior of the pyloric sphincter is the physiologic consequence of the state of contraction or relaxation of the part of the stomach adjacent to it. The familiar "law of the intestine"—the seemingly purposeful interrelation of contraction and inhibition, respectively, in connected segments of the enteric tract—is apparently followed. As for the possible rôle of acid, as Wheelon and Thomas state, one cannot but conclude that if it really acts to regulate the pylorus it must also act in a similar way on the antrum and stomach as a whole; for "the motility of the antrum determines the motility of the sphincter."

1. The Control of the Pylorus, editorial, J. A. M. A. **75**: 1648 (Dec. 11) 1920.
2. Wheelon, H., and Thomas, J. E.: Observations on the Motility of the Antrum and the Relation of Rhythmic Activity of the Pyloric Sphincter to That of the Antrum, J. Lab. & Clin. Med. **6**: 124 (Dec.) 1920.

TRIBUTE WE PAID GERMANY

According to a recent newspaper clipping "the sum of $500,000 has been given by Drs. Schamberg, Kolmer and Raiziss to the Dermatological Research Laboratories for the support of medical research." The clipping states further that the amount represents the profits received during the war from the sale of the arsphenamin which was manufactured—first as a wartime necessity and later as a licensed preparation—at the Dermatological Research Laboratories, under the control of these men. When it is recalled that the drug was sold at about one-third the prewar price of "salvarsan" of German make, and also that the drug was prepared during the economic conditions attendant on the war, the vastly greater toll collected by the German proprietors at the time they controlled the sale of "salvarsan" may be easily calculated. It is indeed to the credit of the American workers that their gains—modest in comparison to those of the Germans—have been dedicated to altruistic purposes.

UNIFICATION OF FEDERAL HEALTH WORK

"Lest we forget," and simply as a reminder, we reproduce a plank in the platform of the Republican party, as adopted last June:

> The public health activities of the federal government are scattered through numerous departments and bureaus, resulting in inefficiency, duplication and extravagance. We advocate a greater centralization of the federal functions, and in addition urge the better coordination of the work of the federal, state and local health agencies.

It is hoped that the party now in power will not forget an important plank of the platform on which it rolled into power.

Surgery; Hospital: Nursing.—The tripod on which the alleviation of a great many of the sufferings of mankind and the prolongation of human life rests, has for its supports good surgery, good hospitals, good nursing.—J. J. Walsh, *Hospital Progress* **3**:53, 1921.

Association News

THE BOSTON SESSION

Special Railroad Fares

The Trunk Line Association acts for the railroads within the following territory:

New York State (east of and including Buffalo, Niagara Falls, Suspension Bridge and Salamanca), New Jersey, Pennsylvania (east of and including Erie, Oil City and Pittsburgh), Delaware, Maryland, District of Columbia, Virginia and West Virginia (east of and including Wheeling, Parkersburg, Kenova, Orange and Norfolk).

This association has just announced that there will be available for members of the American Medical Association who go to Boston for the annual session a special rate for the round trip, going and returning by the same route, of one and one-half fares to the western gateway of the New England Passenger Association territory, plus double the regular one way fare from this gateway to Boston. In order to secure this rate, the purchaser is required to present an identification certificate. One certificate will enable the member to purchase tickets for himself and for dependent members of his family. These identification certificates may be secured by writing to the Secretary of the Association, Dr. Alexander R. Craig, 535 North Dearborn Street, Chicago, and enclosing a self-addressed, stamped envelop. They will not be available for two or three weeks, so that requests received in the interim will not be acknowledged but will be filed and will be given attention as soon as the certificates are available.

Tickets will be sold on presentation of these certificates from June 4 to 6, and will be validated at Boston during the days of the session. When validated, these tickets will be good for return, leaving Boston on the date of validation, and the passengers must reach original starting point within the limit shown on tickets but in no case later than midnight, June 13.

As soon as advices are received from the chairmen of other passenger associations regarding the action which may be taken by their lines, the American Medical Association will be informed and prompt announcement will be made through The Journal.

ANNUAL CONFERENCE ON MEDICAL EDUCATION AND HOSPITALS, LICENSE AND PUBLIC HEALTH

Held in Chicago, March 7-10, 1921

MEDICAL EDUCATION AND HOSPITALS

Monday, March 7—Morning

The Seventeenth Annual Conference of the Council on Medical Education of the American Medical Association met in the Florentine Room of the Congress Hotel and was called to order at 9:40 a. m. by Dr. Arthur Dean Bevan, Chicago, chairman of the Council on Medical Education.

Organization of the Profession for the Practice of Modern Scientific Medicine

Dr. Arthur Dean Bevan, Chicago: The task to which we dedicated ourselves—the securing of uniform and acceptable standards—has in large part been achieved. The accepted American standard is now two years of premedical work in a university, a four year medical curriculum and a hospital year, forming as high a standard of medical requirements as those adopted by any country. But our task has not been completed. Last year the House of Delegates added to the duties of the Council on Medical Education the duty of studying the hospitals of the United States for the purpose of improving their standards and the character of their work. This added function came naturally enough, as with the addition of the hospital year to the medical curriculum the Council had been compelled to investigate carefully the hospital problem from the educational standpoint.

As the work of the Council grew and we were compelled to study not only the undergraduate medical work but also the intern year in the hospital, graduate medical work, the training of specialists, the development of group practice and the actual medical work done in hospitals, we have realized that our problem is a large and complex one. There has crystallized clearly into view the fact that the efforts of this congress and of the organized profession of the country are all for the common purpose of securing for the people the great possibilities of the cure or prevention of disease offered by modern scientific medical practice.

There has been much discussion of the coming of compulsory health insurance and state medicine. Fortunately, other countries have experimented with these methods and the results are not sufficiently encouraging for us to follow their example. It has become more and more evident that these great medical problems must be solved, and the medical work done by the medical profession itself. In our democratic form of government the medical functions of the city, of the state and of the nation must largely be developed and carried on by those who are best qualified—the medical men themselves.

How can this best be done? By a scheme of state medicine? Probably not. How then? By the intelligent and well organized efforts of the medical profession. Is this to be accomplished by creating out of the medical profession a huge political machine which shall enter into every town, every county and every state and which shall enforce laws for the purpose of furnishing medical care to all individuals? Not at all. It is not necessary to alter in any way our present laws or our present organization. It is simply necessary for the organized profession to recognize the fact that its most important function is to secure for all our people the benefits of modern medical practice and to develop intelligent practical plans to secure the best medical service possible in each community. Such a program means the cooperation of the profession with the municipal, state and national authorities. It means an energetic and intelligent propaganda for the education of the people and the profession. It means the creation of a public opinion which will demand efficient, sound, universal medical practice, and it means providing for each community the necessary medical men and medical plants and medical equipment.

The time has arrived when it is evident that we must reorganize our course of medical study for the purpose of giving a broader and less specialized training to the men who graduate in medicine and who are to become general practitioners. The training of specialists comes later and is the special preparation to be given to a limited group of men, 10 per cent. or more of the practitioners of the community, who are to provide expert medical services in limited fields of practice.

We must not only reorganize our undergraduate work on broader lines, but we must give to the position of the general practitioner the importance which it deserves in the whole medical scheme. The common illnesses furnish much more than 90 per cent. of the total number of cases in actual practice, and these cases can be much better taken care of in a community by the broadly trained general practitioner who lives there and is always accessible than they could possibly be by any scheme which employs the services of specialists, no matter how competent.

There are two safe plans for the practice of a specialty: First, the practice of a specialty by a specialist who has the broad view of medicine acquired in general practice as well as the special training required in his limited field. Second, the practice of a specialty by a specialist who lacks the broad training of the general practitioner, but who acts as a member of a group well organized for group practice, so that patients referred to him have been carefully gone over by a man broadly trained in general medicine who acts as captain of the group and makes the diagnosis of the general condition of the patients and decides what cases require the services of this or that particular specialist and controls in a general way the diagnosis and the therapy in the case.

The broad question of organizing medical practice so as to secure for the public the great possibilities of modern medicine is a large and complex subject. It includes not only the subject of educating the general practitioner and medical specialist, but also the organizing of general hospital and outpatient departments, of special hospitals and group clinics, wherever they are needed, the proper training

of nurses, proper public health service, and the combining of all this work with the practice of medicine in the most effective way. In a practical way the first step to be taken by each county and each state medical society is a survey of existing conditions to ascertain its medical needs.

Private Medical Practice in Its Relation to the Idea of Progress

DR. V. N. LEONARD, Duluth, Minn.: We are all ready to admit that the average patient is entitled to the best that scientific medicine can offer. This is our responsibility. Yet we know that in spite of increased educational requirements in the medical schools, the extension of postgraduate training and the division of work into various special fields, this responsibility has not been fully met. Sooner or later the fact must be faced that our present system of individual medical practice not only cannot of itself be made to shoulder its present responsibilities but will become less and less capable of doing so because of the ever increasing complexity of our work. If the practice of medicine is to endure as a private enterprise, it must meet its responsibilities completely and efficiently.

Whatever reorganization of our methods may be necessary, it must originate within the profession and be directed and controlled by it. The danger of legislation destructive to the rights and privileges we now enjoy, to our ideals, our hopes and our power for public good is a real danger.

The task of training any individual to shoulder the enormous burden of modern medicine has long since become impossible. No man, however resourceful, however comprehensive his training, can ever hope to carry it. The one obvious solution of the difficulty is a rational division of labor—not a division which will scatter the fragments of scientific medicine to the four winds, but a division by closely cooperating workers, one which will offer proper guidance to the patient, one which will admit of a ready synthesis of diagnostic findings and intelligent collaboration in therapy.

What would become of the general practitioner under such a reorganization? For the reason that most of us are general practitioners this question would perhaps concern the profession more than any other. In the first place, large numbers of physicians now in general practice would become members of cooperative groups. A group entirely composed of general practitioners can, as experience has shown, at least afford adequate laboratory facilities which are beyond the reach of the individual. Such a group will progress in direct proportion to the vision and unselfishness of its constituents. Each can be encouraged to develop himself along chosen lines, to assume his chosen portion of the burden. Given the opportunity, which might never have come to him as an individual, a member of such a group will soon be doing better work in his chosen field than any one in his community. Coincident with this development, the community will soon be receiving a quality of medical service which it had never known and which it will be quick to appreciate. But what of the general practitioner in this community who prefers to remain in independent practice? There will be many like him, and many will be needed. No reorganization of our methods could ever supplant the family physician. He is a necessary and vital factor in the public welfare. But his burden must be lightened, he must have the practical support of the group, and the group must have his cooperation. Cooperation is the keynote of the whole situation. The practitioner must realize that the group needs him quite as badly as he needs the facilities which the group has to offer, while the group must realize that to obtain his support its facilities must be freely opened to him in a genuine spirit of service and cooperation, respecting his rights, and scrupulously turning back to him such work as he can adequately handle.

It is the belief of a constantly increasing number of medical practitioners that group work will accomplish at least two things: First and foremost, it will enable the clinician to meet his full responsibilities to his patient in offering to the public a comprehensive service at a cost which can be met by the average patient. Second, it offers a much needed opportunity for closer organization of the profession as a whole.

What concerns us most at present is how to enable the practicing physician to meet the increasingly heavy demands modern conditions are heaping on him. The solution of this problem will largely determine the future relation of the physician to society. If the state must carry a portion of his burden he will sooner or later become the servant of the state. If politics can be kept out of medicine until the profession itself has an opportunity to accomplish a satisfactory reorganization of its methods, and especially if such a reorganization should result in a close cohesion among medical men as a whole, a future commensurate with our honorable past may be assured.

SYMPOSIUM ON GRADUATE TRAINING IN THE VARIOUS MEDICAL SPECIALTIES

Medicine and the Medical Specialties

REPORT OF THE COMMITTEE ON INTERNAL MEDICINE

DR. JAMES B. HERRICK, Chicago: As to the requirements for recent graduates applying for certificates of competency as internists, the members of the committee are in quite general accord as to the principles involved.

1. It is felt that all such applicants must be able to furnish evidence of satisfactory training in the fundamental sciences of chemistry, biology and physics.

2. It is felt that candidates must be graduates of reputable medical colleges, but that a certain degree of latitude must be allowed in the interpretation of this requirement. It hardly seems fair to demand that all applicants be graduates of Class A schools, for not infrequently able men graduate from poor schools, but have been able to overcome that handicap. The danger of accepting poorly prepared men can be overcome by formulating required standards of work during the intern year.

3. Inasmuch as an intern year is part of the required course in some schools, it must be assumed that all candidates should be able to present evidence of having taken at least a year's work after the standard four-year medical course.

4. There is a certain amount of difference of opinion among the members of the committee as to the time to be required for special preparation for internal medicine and the way in which it is to be spent.

(*a*) There is substantial agreement that not less than three years' work, exclusive of the preliminary intern or laboratory year, will be required to acquire a reasonable degree of proficiency. Some members of the committee believe that a longer period is desirable; none favor a shorter one.

(*b*) There is fairly substantial agreement regarding the conditions under which the candidate should work. They may be summarized as follows:

(1) The work should be done under the supervision of a recognized institution.

(2) Time should be available both for careful routine work and for study and research.

(3) The principle of increasing responsibility with increasing efficiency should be followed.

(4) The applicant should be required to show special proficiency in some one field.

(5) He should be required to make a special study in the preclinical sciences underlying this particular field, and

(6) He should present evidence demonstrating his familiarity with the methods and aims of research, including knowledge of the use of literature.

It is believed that the nature of the work should be about as follows:

1. Clinical study of patients for about 50 per cent. of the allotted time.

2. Study of scientific problems in the laboratory for the remainder of the allotted time.

The examination of candidates should be as practical as possible, but should at the same time assure proof that the examinee has grasped the principles underlying his professional life work. So far as possible the bedside examination and the carrying out of assigned laboratory procedures should be the chief means of determining efficiency, but there is doubtless a place also for written and oral tests.

REPORT OF THE COMMITTEE ON PEDIATRICS

DR. HARRY M. MCCLANAHAN, Omaha: Conclusions: 1. Young men who can and will give three years to the study of pediatrics and the allied sciences are those who in the future will be qualified to take chairs in our universities. These men will be capable of doing research work and logical thinking. They will add to our knowledge.

2. Older men who have had a considerable practical experience cannot take such courses; neither can they become proficient in certain of the sciences. These men should have the opportunity, therefore, of perfecting themselves in embryology and anatomy of the infant, in physiology and a sufficient knowledge of chemistry and biochemistry to at least recognize the cases that should be benefited by such knowledge. The modern tendency toward group medicine will make it possible for men with wide clinical experience to become associated with younger men with modern training, and can thus give their patients the benefit. They should, however, possess sufficient training to enable them to interpret the findings.

3. Opportunities for studying diseases of the new-born should be afforded those doing postgraduate work. Many lives are sacrificed at

the threshold that might be saved. It would be well to establish a closer affiliation between the departments of obstetrics and pediatrics, as is now the case in the University of Minnesota.

4. The question of degrees and certificates requires separate consideration. Degrees can be granted only by universities and it seems to me that a discussion of this subject is beyond the province of the committee. Certificates can be granted by any properly constituted body. When certificates are granted by personal examination of the applicant, they will have a distinct value; the chief advantage in our judgment resides in the fact that the man poorly qualified will hesitate to apply for a certificate. It will encourage physicians to prepare themselves more fully in order to obtain a certificate. I quote as follows a letter received from Dr. George Blumer: "I feel that when it comes to the granting of certificates, we must not be too technical the way a man reaches efficiency, provided we are satisfied he has attained it, so that we shall probably have to treat the case of the older man differently from the case of the young man who takes up some particular subject right after graduation."

5. Are our medical schools in the chief medical centers prepared to give ample opportunities for postgraduate study in both clinical and laboratory departments? This question is answered by an article appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 15, 1920, by Dr. Louis B. Wilson of Rochester, Minn. The evidence is that the American universities have ample facilities.

6. Pediatrics is internal medicine with an age limit. Infants and children are subject to nearly all the diseases of adults excepting those due to age; hence it follows that clinical facilities should be provided in the various clinics, as skin, venereal, genito-urinary, eye, ear, nose and throat departments. Surgical pediatrics should also receive consideration; for example, congenital hypertrophic pyloric stenosis.

GRADUATE TRAINING IN NEUROPSYCHIATRY

DR. ARTHUR S. HAMILTON, Minneapolis: Of the Johns Hopkins' graduates since 1912, 6 per cent. are now engaged in nervous and mental diseases, but it must be realized that special facilities in this line exist in Johns Hopkins, and on that account an unusually large number of graduates would enter neuropsychiatric work. Dr. Bevan estimates that in the United States about 3,000 students are graduated each year, and of these something like 300 to 500 become specialists. Assuming that 10 per cent. of these choose neuropsychiatry as their specialty and that each determines on a three-year course of preparation, we must provide for from ninety to 150 men as constantly under training.

In the opinion of the committee, an adequate graduate training sufficient for university endorsement of qualification to practice as a specialist in neuropsychiatry calls for a minimum course as follows in the order suggested by the Council on Medical Education:

(*a*) The basic general training in the undergraduate medical school should be at least that of Class A school, giving laboratory courses in neuro-anatomy, neurophysiology, neuropathology and instruction in psychology, clinical neurology and psychiatry. The number of hours recommended by the American Medical Association (105) for clinical instruction in neuropsychiatry is not sufficient, especially when the students have not been well prepared in the preclinical branches, with the result that the general practitioner is ordinarily lamentably ignorant of nervous diseases and especially of functional and behavior disorders which are by far most frequent in general practice. It might well be emphasized that even more important than the time element is that of competent instruction.

(*b*) Courses leading to the specialty, which might be elective in the undergraduate medical school, should include advanced work in all of the foregoing; yet it must be borne in mind that, with the crowded state of our present curriculums, the student cannot hope to become sufficiently familiar with any one and much less with all of even the preclinical subjects, and a considerable part of the postgraduate period must be set aside for additional work in the fundamental subjects. It must also be remembered that most men select their special field in medicine during the course of their internship or after entering practice, and to such men electives in the undergraduate period will have had no special value. Considering also how important it is that specialists in neuropsychiatry should have a good understanding of general diagnostic procedures, particularly as applied in internal medicine, it is easy to see how a student may come to his postgraduate work relatively overweighted in his preparation for neurology, but lacking in sufficient general foundation.

(*c*) The hospital internship is an essential part of the preparation for specializing in neuropsychiatry and should be either a rotating general service or a service in internal medicine. The broader the understanding of general medicine and of pathology, the better specialist will the man be.

(*d*) 1. Review courses in anatomy, physiology, pathology and psychology are not sufficient. Undergraduate instruction in the preclinical subjects, even when supplemented by electives, does not constitute a sufficient basis for subsequent specialization, and any attempt merely to review these courses must result unsatisfactorily. Only extensive independent investigation in these subjects, wholly different from the didactic work of the undergraduate period, will suffice.

A much closer correlation than is usually found is needed between the clinical and preclinical subjects, and work in the latter field should be directed by one who is at least in sympathy with and able to appreciate the clinician's point of view. In other words, in neuro-anatomy, neurophysiology and neuropathology, the instructor should have in mind integration, localization and clinical application, and should teach them as applied science rather than as pure science. In even greater degree is it necessary to bring psychology, as ordinarily taught, into close relationship with the needs of one who will ultimately engage in the practice of medicine. Research in human behavior as a field of psychology is just beginning, and yet it is this which the medical student really needs. Considering the lack of clinicians qualified to teach the laboratory branches, the necessary correlation can probably be better secured by proper cooperation between the laboratory and clinical teachers than through the assumption of preclinical branches by the latter.

A too rigidly prescribed course to be required of every one entering the practice of neuropsychiatry must be avoided. Standards are essential, but there will always be those of exceptional ability or whose peculiar experience may have been such as to amply qualify for practice, teaching and research, even though they may not have had the benefit of a well-planned and well-balanced period of study, and the time will always vary with the preliminary attainments and native ability of the student. Accomplishment rather than time spent should be the determining factor in deciding on fitness. Yet all this constitutes no reason why a well-planned and well-balanced course of study may not be available to those who desire to fit themselves for a course in neuropsychiatry.

REPORT OF THE COMMITTEE ON POSTGRADUATE INSTRUCTION IN SURGERY

DR. CHARLES H. FRAZIER, Philadelphia, and DR. DEAN LEWIS, Chicago: In consideration of postgraduate instruction in surgery, the committee realized that provision must be made for two separate and distinct groups: First, those who, on graduation in medicine, may wish to pursue a course which, on its completion, will prepare them for the practice of surgery and lead to a degree; and, second, those who have been engaged in the practice of general medicine for a number of years and wish to prepare for the practice of surgery; or, having practiced surgery, are desirous of perfecting themselves in the more recent developments in diagnosis and practice.

Group 1. This committee in its recommendations has in mind the degree of Doctor of Philosophy, but it is apparent that requirements for this degree may not be uniform in the several universities in which the candidates may be enrolled. Therefore, before the report of this committee is adopted, a conference should be had with the representatives of the graduate schools of the leading universities for the purpose of ascertaining under what conditions the degree of Doctor of Philosophy will be granted.

Group 2. To outline a course of preparation for those who can continue their hospital service as in Group 1 for the minimum three years, is not a difficult task. It implies merely continuance of a hospital service, beginning in the junior grades and advancing to a position of greater responsibility. The candidate would be part of an organization already in operation in many hospitals.

Recommendations as to Group 1: 1. The postgraduate course, as herein provided, is the equivalent of that now required for a Ph.D. degree in other departments of graduate schools.

2. For the prospective candidate there should be no differentiation in the third and fourth years of undergraduate study.

3. As a preliminary requirement each candidate should serve an internship, preferably a rotating service. This service should be at least one year in length in an approved hospital, and at least six months of the time should be devoted to medicine.

4. The candidate should be a graduate of a Class A school.

5. The committee does not approve of a definite time schedule, but the candidate should meet the requirements, in time, in the character and amount of work accomplished, of the degree in question.

6. The candidate should demonstrate his capacity for investigation and research by presenting an acceptable thesis based on the thorough study of some definite surgical problem.

7. The candidate should receive his training in a hospital with at least seventy-five surgical beds. His service should include personal contact with patients, history taking and clinical and laboratory examinations in wards and dispensaries.

8. A course in operative surgery on the cadaver is highly desirable, but the course should include also operations on animals and assistance in the surgical clinic.

9. Not only is there no objection to the candidate's being assigned as an instructor if qualified, and when the opportunity offers, but the committee believes that training in teaching has many advantages.

10. Before completion of the courses outlined, an examination shall be conducted by a board authorized to grant a degree; this board may be appointed from the members of faculties of universities engaged in the giving of postgraduate courses in medicine.

11. The examination, which should be oral and written, should include the following subjects: surgical diagnosis, including the examination of patients; surgical pathology; surgical anatomy; surgical physiology; operative surgery; preoperative and postoperative care of patients; traumatic and surgical diseases.

12. In the preparation for the degree, "practical surgery" should be the major subject; anatomy, physiology or pathology the minor subjects.

13. To those sufficiently well prepared and properly qualified, research problems in any one or more of the above-mentioned subjects may be offered.

Recommendations as to Group 2: 1. The candidate should be a graduate of a Class A medical school.

2. He should have served an internship in an approved hospital, the internship being at least one year.

3. The candidate should offer bona fide evidence that he is interested in surgery and that he is morally qualified.

4. The candidate should have a thorough review of anatomy and operative surgery and should come in contact with the patients before an operation and see, when possible, the operation and coordinate the gross pathology when such exists with the microscopic findings.

[NOTE.—The names of all the committeemen will appear in the full report.]

REPORT OF THE COMMITTEE ON OTOLARYNGOLOGY ON PREPARATION FOR SPECIAL PRACTICE

DR. GEORGE E. SHAMBAUGH, Chicago: Most of the men seeking preparation in otolaryngology have heretofore relied on the taking of postgraduate courses. These, for the most part, are short, intensive courses

and clinics suitable especially as review work for those already established in special practice. Such courses do not form a proper basis for the preparation of the specialist, even when pursued over a period of months or years. The objection to such courses as a basis for special practice is the same whether these courses are offered in New York, Chicago, London or Vienna. It is not in listening to discussions or demonstrations by others that the student acquires a store of useful knowledge, but by actually doing the work himself.

A few of our men have secured their special training by serving as interns in special hospitals. Such preparation has also been insufficient, as the time of the student is taken up largely by assisting at the major operations and by the surgical dressing of cases with little or no opportunity for the more difficult and much more important work of making careful examinations to determine what cases require surgical treatment.

In outlining a plan for the proper preparation for special practice, this committee has kept in mind the following principles:

1. The student must have proper preparation before taking up the work of the specialty. We recommend, therefore, that he be a graduate of a Class A school and shall have completed a full year as intern in an approved general hospital.

2. The work pursued must be on the basis of genuine graduate instruction in which the opportunity for work, adequate facilities, is provided, while the student is encouraged to do his work independently.

3. The subject matter must include work in the fundamental sciences as well as the clinical study of cases.

We recommend that the minimum period of training consist of eighteen months' full time work, the first year to be spent in one place. The last six months may be continued here or the work may be pursued in other approved centers. The work during the first year should include a half of each day devoted to the clinical study of cases, the other half day to the study of the fundamental sciences and to library work. All of this work must be done by the student independently under proper supervision. Instruction by course-taking, clinics, etc., is discarded as of no particular value in the first year of fundamental training.

The work in the fundamental sciences should be done in a properly equipped laboratory such as exists in all Class A medical schools. The clinical work must be done in a properly equipped and properly organized outpatient department either of a Class A medical school or of a special hospital, the student serving as clinical assistant.

On the completion of the first year's fundamental training, the student is advised to secure, so far as this is possible, the position of intern in a special hospital or of resident in otolaryngology in a general hospital.

For these students who are not able to secure suitable hospital positions after the completion of the first year's work, the remaining six months necessary to fill out the eighteen months' minimum requirement may be taken as continuance of the first year's work in the same institution or in advanced work in other centers. Others may devote the last six months serving as assistants in the practice of some established specialist. When the latter alternatives are followed, the work selected must meet with the approval of the institution in which the first year has been spent.

We recommend that on the completion of the foregoing requirements, the student be granted a certificate setting forth that he has had the proper training for taking up the practice of the specialty. This certificate is to be granted by the institution in which the first year's work has been taken. We make no recommendation regarding the granting of higher degrees. We feel satisfied that such degrees will be granted by the university as readily to those students preparing for the practice of otolaryngology as to students in any other field whenever the work pursued meets the requirements established for the granting of such degrees.

We recommend the perfecting of existing postgraduate courses, clinics, etc., as review work for those established in special practice, as well as for those who have completed the first year of fundamental training outlined above.

In order to put into operation this simple, effective program for preparing men in otolaryngology, we recommend that the Council on Medical Education and Hospitals, after investigation, publish a roster of the several institutions in this country prepared to fulfil the requirements for work as outlined above, giving the number of places available in each institution. This list should include only those Class A medical schools with an outpatient department properly developed and equipped for providing suitable work for a small corps of clinical assistants, as well as such hospitals with outpatient departments suitable for such work. It is also recommended that a similar list be published of approved special hospitals in which there are positions for interns available, as well as those approved general hospitals where there is a position of resident in otolaryngology. The list should state the number of places available in each hospital.

It is further recommended that the Council, after investigation, publish a list of such postgraduate institutions in which courses are being offered that are suitable as review work for those established in the practice of otolaryngology as well as for those who, after completing the first year's fundamental training outlined above, desire to finish their last six months' preparation by taking such special courses.

REPORT OF COMMITTEE ON ORTHOPEDIC SURGERY

DR. R. W. LOVETT, Boston, and DR. EDWIN W. RYERSON, Chicago: This committee takes the position at the outset that orthopedic surgery is a branch of general surgery, and that no preparation for the practice of orthopedic surgery can be considered satisfactory which does not comprise adequate practical training in the principles and technic of general surgery.

(*a*) **Basic general training in the undergraduate medical school?**

Answer: Basic general training in an undergraduate medical school, preferably a Class A school. The candidate for orthopedic surgery should take the standard medical course. The ability to read French, Italian or German should be considered as an added qualification for taking up the study of the specialty.

(*b*) **Courses leading to the specialty which might be elective in the undergraduate medical school.**

Answer: In the case of schools where orthopedic surgery is a required subject, and where the opportunity for elective courses exists, especial stress should be laid on the value of additional training in anatomy, surgical physiology and pathology, and neurology in the preparation of the orthopedic surgeon.

(*c*) **The hospital internship at the time of graduation—should it be a rotating internship in a general hospital?**

Answer: Surgical internship of at least one year.

(*d*) **Minimum practical graduate training in the specialty considered: (1) Review course in the anatomy, physiology, pathology and bacteriology, etc., of the organs involved.**

Answer: The minimum graduate course in preparation for the specialty of orthopedic surgery should include hospital work of at least one year (in addition to) devoted entirely to an orthopedic service, and six months of practical work in allied activities, such as physiotherapy, shop work and schools for the crippled. During this time, review courses in anatomy, surgical physiology, pathology, neurology and applied mechanics. It is hoped that the length of this minimum course may soon be extended to at least two years, but under present existing circumstances the committee is of the opinion that the course as recommended is as long as should now be considered the minimum.

(*e*) **Suggestions regarding hospital internship or other clinical courses when further knowledge or skill in the specialty may be obtained.**

Answer: If a student, on completing the minimum course as suggested, desires further clinical experience, he should obtain a fellowship in the subject at some institution where such facilities exist, or serve as assistant to a properly qualified orthopedic surgeon.

The committee feels that its recommendations should be held to pertain only to the training of specialists in orthopedic surgery, and not be considered as an expression of the value of short courses for graduates in medicine.

(*f*) **Advisability of granting a certificate in the specialty to physicians who have demonstrated their proficiency.**

Answer: The committee believes that no advanced degree should be given for less than three years of work in orthopedic surgery in a recognized university equipped to give such instruction. The course recommended earlier in this report as constituting the minimum requirement should be considered as forming a part of this three-year course leading to an advanced degree.

(*h*) **Recommendations regarding a board of examiners and methods of testing proficiency of those completing the course, or others seeking the certificate in the specialty.**

Answer: The committee is of the opinion that for the present it is not desirable to recommend in this specialty either examining boards or the issue of certificates.

OUTLINE FOR POSTGRADUATE STUDY IN UROLOGY

DR. HERMAN L. KRETSCHMER, Chicago: Urology should be understood to embrace diseases of the urinary organs in men, women and children, as well as genital and sexual diseases of the male. The various surgical lesions of the above-mentioned organs are to be included.

Minimum requirements for training in urology: 1. Graduation from a first-class medical school.

2. The internship to be of two years' duration, which may be divided in one of two ways:

A. (*a*) A medical internship for one year; this to be a broad general service with men of wide experience.

(*b*) A surgical internship for one year in a general surgical service, with ample opportunity to perform the more common standard operations. This under supervision and instruction of the attending surgeon.

B. (*a*) Medical internship for six months.

(*b*) Surgical internship for six months.

(*c*) Gynecologic internship for six months.

(*d*) Surgical resident for six months.

These services to be taken in a standard hospital with a large clinical material and proper supervision.

3. Special urologic training, this to embrace two years and preferably three years of special training in urology in a first-class hospital. It should be offered only at such institutions as have fully equipped departments of urology with a large and varied material, including men, women and children, with ample opportunity to perform major urologic operations.

(*a*) Work in the outpatient department.

(*b*) Laboratory work to include bacteriology and surgical pathology of the genito-urinary system, blood chemistry, etc.

(*c*) Extensive experience in the use of special diagnostic and therapeutic instruments, such as cystoscopy, ureteral catheterization, urethroscopy, fulguration, pyelography, functional tests, etc.

(*d*) Roentgeography:

1. Primarily of the genito-urinary tract, that is, combined urologic and roentgen studies, such as pyelograms, cystograms, etc.

2. Secondarily, some instruction in roentgenography as relates to the genito-urinary tract, such as bone metastasis in malignant disease, bone changes in arthritis, etc.

(*e*) Ample facilities for research and experimental urology.

(*f*) Preoperative and postoperative care of urologic patients.

(*g*) During the period of training, at least six months should be spent as a resident urologist with extensive opportunity to perform major urologic surgery, or to act as an assistant to one experienced in urologic surgery.

(*To be continued*)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Graduate Medical Course.—A graduate course in medicine and surgery has been established at the John A. Andrews Memorial Hospital connected with Tuskegee Institute, Alabama, beginning Monday, April 4, 1921, and continuing for four weeks. No arrangement is provided for a shorter course.

CALIFORNIA

State Medical Society Meeting.—The annual meeting of the Medical Society of the State of California will meet at Hotel Coronado, San Diego, May 10 to 12, inclusive.

Los Angeles County Medical Association.—The fiftieth anniversary of the organization was celebrated at a banquet, with Drs. Walter Lindley and Joseph Kurtz—the only surviving charter members—as guests of honor. The officers of the association for the present year are: Dr. Walter V. Brem, president; Dr. Hill Eastings, vice president; Dr. Harlan Shoemaker, secretary. At a regular scientific meeting held March 3, Dr. Edwin O. Jordan, Chicago, spoke on "Observations on the Epidemiology of Influenza."

DELAWARE

Care of Mental Defectives.—As a result of surveys in New Castle and Sussex counties made by the U. S. Public Health Service in collaboration with the children's bureau, the state officials engaged in the care of mental defectives have become intensely interested in the establishment of a bureau of mental hygiene in connection with the state board of charities. First steps in carrying out a program for the institutional care and community supervision of the mental defectives resident in the state, have been taken by the appropriation by the legislature of $60,000 for improving the care and treatment of the mental patients in the state hospital at Farhnhurst. A training school for nurses specializing in neuropsychiatric diseases will be opened; reconstruction aid in both occupational and physicotherapy will be engaged, and additional physicians will be employed.

DISTRICT OF COLUMBIA

Personal.—Dr. Charles W. Richardson received the honorary degree of Doctor of Science recently from the George Washington University at its convocation.

FLORIDA

Personal.—Dr. J. H. Hodges, Gainesville, has been appointed superintendent of the Florida Farm Colony for Epileptic and Feebleminded at Gainesville, to succeed Dr. Loren A. Greene, resigned.

Health Laboratory at Orlando.—A laboratory to serve the needs of central Florida will be established at Orlando by the state board of health. The counties of Orange and Seminole, and the Orlando Chamber of Commerce have agreed to provide the necessary quarters and to furnish all facilities, with the exception of the laboratory equipment.

GEORGIA

Personal.—Dr. James A. Thrash has been appointed health officer of Columbus, to succeed Dr. B. J. Fitzmorris.

New County Society.—The Lamar County Medical Association was recently organized with the following officers: president, Dr. John M. F. Barron, Milner; vice president, Dr. Clarence H. Willis, Barnesville, and secretary-treasurer, Dr. John M. Anderson, Barnesville.

ILLINOIS

Personal.—Walter D. Thurber, who has been the managing director of the Illinois Tuberculosis Association for the past five years, has resigned to accept a similar position with the Maine Public Health Association.

Tuberculosis Clinics.—All day teaching clinics on the diagnosis and treatment of tuberculosis are announced for Murphysboro, Chester and Anna. These clinics will be held during March and April with Drs. George Thomas Palmer of Springfield and J. W. Pettit of Ottawa in charge. In each case the program will be carried out under the joint auspices of the local medical societies and tuberculosis associations.

Epidemic Poliomyelitis.—The state department of public health, through its division of child hygiene and public health nursing, has recently called the attention of the medical profession to the epidemic poliomyelitis situation in Illinois. It points out that while little has appeared in the public prints since 1916 concerning this disease, it is nevertheless still present in epidemic form and that control measures are more imperative now than formerly. In carrying out its plan for the after-care of the victims of poliomyelitis through the twenty-three clinics established in as many cities throughout the state, the division constantly comes in contact with patients afflicted with this crippling disease. It appears that about one case in three is recognized and reported. Physicians who desire information or assistance are invited to communicate with the department or to bring their patients to any one of the established clinics.

Chicago

Health and Sanitation Show.—The Health and Sanitation Exposition, held in the Coliseum, November, 1920, will be held on the Municipal Pier as a part of the Pageant of Progress during 1921. The pageant will be open to the public from July 30 to August 14.

Health Department Studies Problems of Sewage Disposal.—Dr. Gottfried Koehler, assistant commissioner of health, will accompany the drainage district officials on a trip to Kansas City and other Western cities to study methods of sewage disposal. It is believed that the time is near at hand when Chicago will be forced to stop using the drainage channel for this purpose.

Furrier's Dermatitis.—The Chicago Department of Health laboratories are investigating nineteen cases of furrier's dermatitis, reported during the last few weeks. In each case the poisoning was due to fur neck pieces or boas. It is believed that the poisoning in these cases was due to the paraphenylendiamin group of dyes. Some few cases of secondary infection were found, caused no doubt by the itching and scratching.

Testimonial Banquet to Dr. Rawlings.—On March 9, a testimonial banquet was tendered Dr. Isaac D. Rawlings director of the Department of Public Health of the State of Illinois, by some 1,100 health workers from the city department of health, the Municipal Tuberculosis Sanitarium and the state department of health. Dr. Rawlings was presented with a beautiful portfolio and a Tiffany design bronze desk set from his old associates and friends in the department of health.

Child Hygiene Studies.—The division of child hygiene of the Chicago Health Department is making a survey of schoolchildren having discharging ears or suffering from deafness to determine the relationship of diseased or enlarged tonsils and adenoids to such ailments. The division of child hygiene is also actively exploiting toxin-antitoxin as an agency for the prevention of diphtheria as a routine measure and without the use of the Schick test on all children under 10 years of age. Last year 34,059 treatments were given to schoolchildren in the kindergarten and first grade. So far no child thus treated has had diphtheria.

INDIANA

Appropriation for Soldiers' Home.—The Southworth Bill carrying an appropriation of $225,000 for a new hospital and kitchen at the Indiana Soldiers' Home, Lafayette, has been passed by the senate.

KENTUCKY

Continuation of Health Department Guaranteed.—Scott County has appropriated $5,000 which is to be supplemented by $2,500 each from the state and the Rockefeller Foundation for the maintenance of a full-time health department. They also appropriated $2,500 for the current expenses of the John Graves Ford Memorial Hospital.

LOUISIANA

Personal.—Dr. Roy B. Harrison, New Orleans, has been elected secretary and treasurer of the state board of medical examiners.

MAINE

Personal.—Dr. Olin S. Pettingill of the sanatorium at Hebron has been appointed superintendent of the new Essex County Tuberculosis Hospital at Danvers, Mass., which will be opened about April 1.

MARYLAND

Plans to Enlarge Local Quarantine.—The plans of the U. S. Public Health Service to forestall an invasion of typhus and cholera from Europe include provision at the Quarantine Station at Baltimore for the detention of from 1,000 to 1,400 immigrants.

Medical Unit Organized.—Major Howard C. Bailey of the Medical Corps, U. S. Army, has been detailed to the Johns Hopkins Medical School and will be in charge of the Reserve Medical Officers' Training Corps there. He will be added officially to the faculty in the fall. Forty-six students have enrolled.

Personal.—Dr. Carlisle S. Lentz, who recently resigned as an assistant superintendent of the Johns Hopkins Hospital, has accepted the superintendency of the University Hospital at Augusta, Ga. Dr. Lentz has been connected with the Johns Hopkins Hospital for the last seven years.——Dr. Eli K. Marshall, Washington University, St. Louis, has accepted the position of professor of physiology at the Johns Hopkins University Medical School.

Meetings.—At the weekly lecture at the Johns Hopkins School of Hygiene and Public Health, February 28, a new phase of medicine, the training of men as industrial physicians to prevent and remedy unhealthful working conditions in manufacturing plants, was discussed by Dr. David L. Edsall, professor of clinical medicine in the Harvard Medical School. ——A joint meeting of the American Congress on Internal Medicine and the Baltimore City Medical Society was held, February 21, at Osler Hall. The presiding officer was Dr. Frederick Tice, Chicago, vice president of the congress, and addresses were made by Dr. Lewellys F. Barker on "Tetany" and by Dr. Frank Smithies, Chicago, on "Nonsurgical Biliary Tract Drainage, Its Diagnostic and Therapeutic Value."

MASSACHUSETTS

Personal.—On February 1, Dr. Herman A. Osgood was appointed consultant roentgenologist and chief of the roentgen-ray department of the Boston Dispensary.

Evening Clinic.—A special evening clinic was started, March 2, in the gynecologic department of the Boston Dispensary of which Dr. Malcolm Storer is chief, for the special study of dysmenorrhea and sterility. This clinic is under the direct charge of Dr. Samuel R. Meaker.

MICHIGAN

Program Presented by State Society Members.—At the meeting of the Kent County Medical Society, held in the St. Cecilia Building, Grand Rapids, February 23, the proctology team of the Michigan State Medical Society conducted a symposium on "The Medical and Surgical Aspects of Chronic Constipation."

MISSOURI

Inheritance of Whisky.—Whisky obtained for medicinal purposes by special permission of the federal government cannot be inherited as part of the personal estate of a deceased physician, but must be sold under a special permit to a druggist and the money refunded to the estate, according to a ruling of Mr. Shrader P. Howell, prohibition officer for the state of Missouri.

MONTANA

Physicians Ask Law for Use of "Nonbeverage Alcohol."—Dr. J. C. F. Siegfriedt, a member of the state senate, has introduced a bill providing that when a physician has a permit under the national Volstead act to use alcohol for medical purposes he may file this permit with the state secretary of Montana and obtain and lawfully use the alcohol for rubs or whatever is necessary to aid in the recovery of the patient.

NEW JERSEY

Physicians Cooperate in Child Hygiene Work.—The New Jersey State Department of Health is receiving the active cooperation of physicians throughout the state in connection with the Baby Keep-Well stations in sixty-five communities. These consultation stations supplement the work of the child hygiene nurses in the home.

Permit to Erect Abattoir Revoked.—The Atlantic County Medical Society passed resolutions opposing the erection of an abattoir within the city limits of Atlantic City, and also advised the state board of health of its action. Other local organizations joined in the protest and the city commission revoked the packing company's permit to build.

NEW YORK

New York Quarantine Paid For.—A government check for something over $1,500,000 has been received by the treasurer of New York State in payment for the quarantine station on Hoffman Island. Dr. Leland E. Cofer is to be retained as health officer of the post.——Dr. Royal S. Copeland, health commissioner of New York City, states that during the week ended February 21, 6,355 persons seeking to enter the city were examined by the health department and 272 were found infested with vermin.

Amendment to Compensation Law.—The Burlingame bill amending the workmen's compensation law to provide medical treatment for injured employees at the expense of the employer and empowering the commission to fix minimum fees for surgical and medical attention, at a hearing on March 2, met little opposition. The state industrial commissioner opposes the measure and suggested that a committee be appointed to study the medical question so far as it related to workmen's compensation. A number of physicians and representatives of the state federation of labor spoke in favor of the bill.

New Narcotic Bill.—The Smith-Ferron bill, recently introduced into the legislature, would abolish the present narcotic drug commission and strengthen the Harrison act through its enforcing clauses. It places the drug addict under the control of the local health officers and local communities. Under the proposed bill it becomes the duty of the local health officer to provide a place for the drug addict who may become a public charge. The restrictions placed on physician prescribing narcotics by the Whitney bill are removed, but no physician is permitted to prescribe a narcotic drug for self-administration, but must in every instance administer the drug himself.

New York City

Personal.—Dr. Smith Ely Jelliffe was made an honorary member of the Société de médecine mentale de Belgique at its recent reunion.

Epidemic Encephalitis.—For the week ended February 26, there were reported to the health department thirty-nine cases of epidemic encephalitis with seven deaths. Since January 1 there have been 247 cases and sixty-four deaths.

Cancer Campaign.—During the week of March 7, the Society for the Control of Cancer, the New York Department of Health, and the board of education are conducting an educational campaign aiming to instruct the public regarding the necessity for early diagnosis and treatment in all conditions that may possibly be malignant. Lectures will be given in a number of the public schools and literature will be distributed.

Women Gain Control of Medical College.—The Alumnae Association of the New York Medical College and Hospital for Women announce that the state board of regents has removed the trustees of the college, thus taking the control of the institution from the men physicians and placing it in the hands of the women. It is reported that the present board of trustees questions the legality of this action and that the future control of the hospital building probably will become a matter of litigation.

NORTH CAROLINA

Bill to Enforce Treatment for Tuberculosis.—A bill has been proposed giving the courts full and complete control of persons in New Hanover County afflicted with tuberculosis. The minimum time provided by the measure for treatment to be ordered by the court is sixty days and the maximum, until discharged by competent authority of the institution in which the patient is treated.

OKLAHOMA

Public Health Nurse's Institute.—Under the direction of the Oklahoma Public Health Association, a public health nurse's institute was held at Oklahoma City, February 18-19. These meetings are held three or four times a year and are attended by nurses from all over the state. Coordination and development of public health work in the state, health legislation, women's and children's legislation, school nursing demonstrations, open-air school inspection, exhibition of health films, and nurse's round table were features of the program.

OREGON

Medical Library Bequeathed.—The University of Oregon Medical School has received a gift of the medical library of the late Dr. Kenneth A. J. Mackenzie. Dr. Mackenzie was dean of the medical school from 1912 until his death in March, 1920, and it was in accordance with his expressed wish that his library consisting of 700 volumes was presented to the school. With the addition of Dr. Mackenzie's library, the medical school now has a reference library of more than 5,000 volumes.

PENNSYLVANIA

Health Bill Introduced.—A bill, introduced in the senate by Dr. S. J. Miller, chairman of the senate committee on health and sanitation, authorizes the state commissioner of health to call upon hospitals receiving appropriations from the state to furnish rooms for the use of the state department of health in the establishment of clinics.

Ruling on Diagnostic Clinics.—In a recent opinion given Secretary of the Commonwealth Woods, Deputy Attorney-General Hull held: "The principle is laid down that a corporation may not be formed for the practice of medicine, but may be for the purpose of owning, constructing, maintaining and leasing buildings, furnishings, equipment, apparatus and facilities for use as a medical and surgical clinic, laboratory and hospital.

Philadelphia

Personal.—Dr. Alfred Gordon has been elected to membership in the Société de neurologie de Paris.

Prize for Roentgen-Ray Research.—In honor of Dr. Charles Lester Leonard who died in 1913 a martyr to research with the roentgen ray, the American Roentgen Ray Society offers a $1,000 prize for the best piece of original research in the field of roentgen ray, radium or radioactivity. The competition is open to any one living in the United States, or its possessions, Canada, Mexico, Central and South America and Cuba. The research work must be submitted in writing in the English language not later than July 1. The winner will read his paper at the annual meeting of the society in September. Dr. Henry K. Pancoast of the University Hospital is a member of the committee in charge of the competition.

RHODE ISLAND

Memorial Tablet Erected.—A brass tablet in honor of the late Dr. George Dallas Hersey has been placed in the Rhode Island Medical Society library building at Providence by the members of the society. The tablet faces the main entrance of the library and bears the inscription, "Si Monumentum Requiris Circumspice" (if you seek his monument, look around). Dr. Hersey, who served as librarian of the society from 1880 to 1912, was instrumental in the collection of the 25,000 volumes comprising the present library.

WISCONSIN

Proposed Hospital Legislation.—Two bills have been introduced in the legislature by Representative George R. Jones providing that all hospitals, excepting private institutions, must make no discrimination in the admittance of patients by reason of the patients' physicians not being members of the medical staffs, and further providing that any hospital where such discrimination is made shall be subject to state taxation.

CANADA

Medical Association Elects Officers.—Lambton County (Ont.) Medical Association held its annual meeting on February 10. Dr. Charles W. Sawers, Watford, was reelected president, and Dr. Charles H. Smith, Petrolia, secretary.

Hospital Notes.—For the third time in the past ten years, on February 23, fire destroyed a large part of the Ontario Hospital for the Insane, Hamilton, Ont. Two hundred and fifty-five patients in that part of the building were all removed and placed in safety.

Personal.—Dr. Robert F. Ruttan, head of the department of chemistry, McGill University, Montreal, has been appointed to succeed Dr. Duncan G. MacCallum, as administrative chairman of the Honorary Advisory Council for Scientific and Industrial Research in Canada.

Manitoba Doctors Suspended by Medical Council.—Sixteen Manitoba doctors have been suspected from one week to six months, by the medical council of that province, for prescribing whisky. One of the doctors suspended is said to have given 10,000 prescriptions within one month.

Hospital Chairman Honored.—The prospective retirement of Sir Joseph Flavelle from the chairmanship of the board of trustees of the Toronto General Hospital was made the occasion of the unveiling of a tablet in the hospital, in memory of his nineteen years of service in the interests of the Toronto General Hospital.

GENERAL

League of Red Cross Societies.—The third annual meeting of the board of governors, League of Red Cross Societies, will be held in Geneva on March 28, 1921.

Conference on Typhus.—State and federal officers from several of the large Atlantic ports met in Washington, D. C., February 28, at the call of Dr. Hugh S. Cumming, Surgeon-General of the Public Health Service, and discussed the occurrence of typhus cases among immigrants from Europe.

Ohio Physician Becomes President's Physician.—The nomination of Dr. Charles E. Sawyer, Marion, Ohio, to be brigadier of the U. S. Army was sent to the Senate, following his appointment by the President as an officer in the Medical Reserve Corps, and an immediate summons to active service by the Secretary of War. On confirmation of the nomination, Dr. Sawyer will be assigned as military aid to the President and will act as the President's physician.

Request for Typhus Appropriation Fails.—Congress was asked in the closing days of the session to appropriate $1,291,300 for fighting typhus fever, to be distributed at Atlantic ports as follows: Boston Quarantine Station, $219,470; New York Quarantine Station, $485,620; Baltimore Quarantine Station, $287,620; Philadelphia Quarantine Station, $296,620. The subject was presented to Congress too late for action and it will go over to the special session.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lutheran, Hahnemann and Women's hospitals, Philadelphia, each $5,000; Lutheran Hospital for Young Men, and Northern Dispensary, each $1,000; and Kensington Dispensary for the Treatment of tuberculosis, Polyclinic and American Oncologic hospitals, each $250, by the will of James M. Mohr.

St. Mary's Free Hospital for Children and the United Hospital Fund of New York, each $2,500, by the will of Mrs. Ellin Prince Speyer.

St. John's Guild, $5,000; Dr. Fischer's Infantorium, Columbus Day, and Alice Chapin Adoption nurseries, Placing Out Department of New York Nursery and Child's Hospital, Brooklyn Nursery and Infant's Hospital and the Creche, Englewood, N. J., each $2,500, gifts of Edward Hatch, Jr., New York.

Tri-State Medical Association Meet.—At the Carolinas and Virgina, held at Spartanburg, S. C., under the presidency of Dr. John Peter Monroe, Charlotte, N. C., February 16-17, Dr. Lewellys F. Barker, Johns Hopkins University, delivered an address on "Blood Pressure" and Dr. William Sharpe, New York, one on "Cranial Fractures." The 1922 session was voted to convene in Norfolk, Va. The following were elected officers: president, Dr. William Wallace Fennel, Rock Hill, S. C.; vice presidents, Drs. Hugh R. Black, Spartanburg, S. C., John T. Burrus, High Point, N. C., and Karl S. Blackwell, Richmond, Va.; secretary-treasurer, Dr. James K. Hall, Richmond, Va.

License Lost.—Dr. Widmer E. Doremus of Newark states that his license, No. 1722, issued to him by the New Jersey Board of Medical Examiners, Aug. 6, 1903, has been lost. The license was registered in Essex County, Aug. 11, 1903, and in Hudson County about the same date. After Dr. Doremus' entry to the government service in 1917, his office effects were moved to a storage warehouse and the loss of the license was not noted until the office was reopened in September, 1919. Presumably, the license was lost en route either to or from the warehouse. Licensing boards are warned to be on the lookout for this license which may be presented by one not having the right to use it.

Dates Changed for International Congress of Ophthalmology.—The International Congress of Ophthalmology, to be held under the auspices of the American Ophthalmological Society, the American Academy of Ophthalmology and Oto-Laryngology and Fellows of the Section on Ophthalmology of the American Medical Association, is a congress independent of and in no way affiliated with the International Congress of Ophthalmology which has convened from time to time in the past, the last session of which was to have taken place in St. Petersburg in 1914. The dates for the present International Congress to be held at Washington, D. C., have been changed from April 18-21, 1922, as previously announced, to April 25-28, 1922.

Visit of Colonel Smith.—Lieut.-Col. Henry Smith of the Indian Medical Service is on leave of absence pending retirement from that service and will come to the United States the latter part of April, 1921, to address several city, state and national medical societies at their conventions. Colonel Smith is best known as a cataract surgeon but he is first a

general surgeon and executive medical officer having devoted over thirty years as such in the densely populated districts of Jullundur and Amritsar Punjab, India. He has been invited to address society meetings at Toronto, Chicago, Columbus, New York, Boston, Swampscot, St. Louis, Dallas, Denver, Tacoma, Seattle, San Francisco and elsewhere during the months of May, June and July, 1921.

Hospital Bill Successful.—The elaborate program of $18,600,000 for government hospitals was successfully carried out in the last hours of Congress and the bill became a law with the President's signature. This legislation was passed in response to the urgent demand of the American Legion, and Public Health Service for adequate hospital and medical equipment to take care of disabled service men. The law authorizes the immediate expenditure of $6,100,000 in the improvement of existing hospitals and $12,500,000 for the construction of new hospitals. The original plan of constructing five large hospitals at various points throughout the United States, each costing $2,500,000 was set aside, and the law as passed places the entire arrangements in the hands of the President and Secretary of the Treasury who may select locations and construct new hospitals as the needs of the situation require. Without doubt, this hospital program is the largest work of the kind ever undertaken by the government at one time.

LATIN AMERICA

Sanitary Conference of the American Republics.—Our South American exchanges devote much attention to the Sixth International Sanitary Conference of the American Republics, which was held at Montevideo last December. Sixteen countries were represented, namely: Argentina, Drs. J. Llambías and G. Martínez; Bolivia, Dr. J. Montellano; Brazil, Dr. R. Leitão da Cunha; Chile, Dr. A. Atria; Colombia, Dr. P. García Medina; Cuba, Dr. M. Lebredo; United States, Drs. J. H. White and G. M. Guiteras; Guatemala and Honduras, Mr. E. M. Martín; Mexico, Dr. J. J. Etchepare; Panama, Mr. A. A. Martínez; Paraguay, Drs. A. Recalde and F. Abente Haedo; Peru, Dr. C. E. Paz Soldán; Salvador, Mr. G. A. Ruiz; Uruguay, Drs. A. Ricaldoni, J. Maratirené, J. Mainginou, J. Scoseria, A. Berta, A. Gaminara, J. A. Rodríguez, R. Schiaffino, in addition to the members of the organizing committee; Venezuela, Dr. G. Delgado Palacios. The president of Uruguay attended the first session, which was presided over by the secretaries of state and of national industries. The chairman of the organizing committee, Dr. Ernesto Fernández Espiro, was made permanent chairman of the conference. Drs. James H. Oliver and Julio J. Etchepare acted as secretaries. Between sessions the delegates visited prominent institutions, such as the school of medicine, hospitals, sanitariums, laboratories, etc. The delegates were much feted both by the authorities and privately. Some of the reports submitted were very elaborate. The report of the Uruguayan delegation made a volume of over 250 printed pages. Among the most important resolutions adopted was one presented by the Brazilian delegation to the effect that a special session of the seventh congress should be devoted to a sanitary and social study of tuberculosis, venereal diseases and leprosy, and one presented by the American delegation for the reorganization of the International Sanitary Bureau of Washington, D. C. The next conference will be held at Havana in February, 1923. Dr. Mario Lebredo, who represented Cuba in the sixth conference, was appointed chairman of the organizing committee for the seventh conference.

FOREIGN

Cabinet Minister in Greece a Physician.—The profession in Greece hailed with delight the recent appointment to the position of minister of public instruction of Dr. T. Zaymis, who for twenty years has been the incumbent of the chair of surgery in the University of Athens.

Publication of Scientific Work in Munich.—Arrangements have been made with the printing establishment of a former government office by which the university students are to give four hours a day to help in printing the scientific works that have long been waiting for a publisher. This will cut out the profits of the middlemen while giving the students a chance for self-support.

German Children in Sweden.—It is said that during 1920 14,400 German children were given hospitality in Sweden, through the mediation of the Swedish Red Cross, at an expense of 8,640,000 crowns. In addition, between 4,000 and 5,000 students, teachers and children were invited by private parties or corporations. A number of the children were asked to stay through the winter.

Belgian Physicians Decorated by Italian Government.—The Italian government has conferred the cross of the Order of the Crown of Italy on Drs. Snyers, Delcominette and Gulikers of Liége and Dr. Delsemme, in token of appreciation of the services rendered to Italian prisoners of war left in Belgium in such a *triste état*, it is said, by the retiring Germans.

University Chair for Drugless Cult. — Our German exchanges state that a chair for *naturheilkunde* is to be created at Jena as the organized drugless practitioners have demanded. The *Deutsche medizinische Wochenschrift* explains the prompt response to this demand, as the social democrat party is the patron of this cult: The *Nederlandsch Tijdschrift* comments on it, Quod licet bovi, non licet Jovi, adding that things are about the same in the Netherlands, the central board of public health seriously considering recently whether the laws on prophylaxis of contagious diseases should not be amended to conform to the wishes of three irregular practitioners, *kwaksalveristen*.

Council on Pharmacy and Chemistry in the Netherlands.—The organization of this official institution was mentioned some weeks ago. It is modeled to some extent on the Council on Pharmacy and Chemistry of the American Medical Association, and was described in these columns, Nov. 6, 1920, p. 1279. It has inaugurated its work by appealing to the profession to suggest articles to be investigated first. It asks for suggestions up to a certain early date as to what problems and treatment are most pressingly important at present. The address of the council is Hugo de Grootstraat 32, Leiden. The official title is the Rijks-Instituut voor Pharmaco-Therapeutisch Onderzoek.

Typhus in Greece.—Dr. C. Kyriazidis, inspector-general for the public health authorities of Greece, relates that typhus first appeared in Greece in 1883 when fifty persons were affected. Two small epidemics were known during the rest of the century. The disease developed among refugees from Turkey during the war of 1912-1913, and during the recent war it developed in Macedonia, after the reoccupation by the Greek army, with a total of 1,328 cases and mortality of 14.5 per cent. The proteus X reaction was found positive in 70 per cent. of the typhus cases and never in other diseases. In 20 per cent. of the typhus cases agglutination was positive by the sixth day; in 27 per cent. by the seventh, and in 13 per cent. not until the tenth day. In ten cases a vaccine made from the proteus X seemed to shorten the course of the disease, the fever subsiding the third or fourth day after it had been given. The results were no better when this vaccine was combined with an antiexanthematous serum from the Pasteur Institute than when the proteus vaccine was used alone.

Postponement of International Congress.—The *Policlinico* brings word that the president of the Second International Congress on Comparative Pathology, Prof. E. Perroncito, has sent in the following announcement, which forms a sequel to the news item published recently in THE JOURNAL on page 600. He states, "It became evident during the work of organization of the congress that it is not possible yet to reestablish, not even in the field of science, the relations between and cordial cooperation of all workers in comparative pathology in the different nations, without which it is impossible to render truly fruitful the work of an international congress. Hence the committee of organization has decided to postpone the Second International Congress on Comparative Pathology, while continuing its efforts to link together again, without any exclusions, scientific relations between the various nations. As this is impossible to realize at a meeting in the coming April, as planned, the congress is postponed to some future period to be determined later." It was to have been held at Rome in April.

Deaths in Other Countries

Dr. **C. E. Daniels,** in his day a leading physician and professor of surgery and obstetrics at the University of Amsterdam, writer on medical history and internal medicine, aged 81.——Dr. **H. Haeckel,** professor of surgery at the University of Stettin, one of the authors of the familiar "Topographisch-Anatomischer Atlas."——Dr. **Grünhut** of Munich, aged 58.——Dr. **L. Silberstein** of the Blankenheim sanatorium, aged 58.——Dr. **P. Bucher** of Strasbourg, a well known neurologist and pediatrician, founder of the *Alsace française*, aged 51.——Dr. **C. Vestergaard,** of Denmark, prominent in the organization of the profession, aged 51.——Dr. **W. C. M. C. Thulstrup** of Copenhagen, editor of the *Illustreret Tidende*, aged 55.——Dr. **E. A. Escobar,** of Ocaña, Colombia.——Dr. **Mello Reis** of Rio de Janeiro, aged 72.——The cable brings word of the death of Dr. **Vittore Vella,** who died suddenly while performing an operation. He was surgeon in charge of the Lugano public hospital, on the Italian border of Switzerland.

Government Services

Army Medical Museum

To the end that the museum may operate efficiently and that preparation of specimens for exhibition be not unnecessarily delayed, Major-General Ireland urgently requested that the appropriation for the Army Medical Museum be increased by the Senate to $20,000. The bill as reported made an increase of $5,000 over the $10,000 allowed by the House.

Library of Surgeon-General's Office

In order that the work might be carried on with a reasonable degree of efficiency and desirable books purchased, the Senate military committee increased the appropriation for the library of the Surgeon-General's Office of the Army to $15,000. This is the only library in the United States that acquires practically all the current medical literature of the world.

New Hospital Ship

Equipped with every modern device for safety, comfort and care of the sick and wounded, the new hospital ship *Relief* is ready to join the Atlantic fleet. This is the first ship to be built from the keel up for military hospital purposes and, however far from home port, it assures the same facilities for diagnosis and treatment accorded in the municipal hospitals of large American cities. The *Relief* is also fitted as a medical supply depot.

School Hygiene Work Inaugurated

The U. S. Public Health Service has started a campaign of school hygiene work in the larger cities of the country. Local health officials have charge of the surveys in their municipalities, according to the plan of Surgeon-General Cumming, assisted by an official of the U. S. Public Health Service. The first city in which a comprehensive school hygiene survey is being made is Minneapolis. Surg. Taliaferro Clark of the Public Health Service is assisting the city director of hygiene.

Army Rejections Compiled in Report

Surgeon-General Ireland of the Medical Corps has issued a report on the statistics covering rejections of recruits for the Army because of physical disabilities. The report covers the month of January, 1921. A total of 28,681 applicants for enlistment were examined and the number rejected amounted to 3,914. Of the causes for rejection, neuropsychiatric diseases led the list with 505, general surgery and skin second with 386, cardiovascular third with 333. Other rejections were ophthalmologic, 376; otolaryngologic, 285; tuberculosis, 158; orthopedic, 168; dental, 77; venereal, 241; developmental, 191, and miscellaneous, 396.

Reduces Office of Surgeon-General

In compliance with the policy of the General Army Staff to reduce to a minimum the number of officers on duty in Washington, D. C., Surgeon-General Ireland of the Medical Corps has submitted recommendations for the reduction of his commissioned force. At the present time there are one brigadier-general, four colonels, twenty lieutenant-colonels and majors, and ten captains and lieutenants on the staff of the Surgeon-General making a total of thirty-five officers. If the proposed changes are made the decrease will number nine officers and the Medical Corps force on duty at the Surgeon-General's Office will consist of one brigadier-general, four colonels, fifteen lieutenant-colonels and majors, and six captains and lieutenants.

Public Health Activities in Virgin Islands

In reply to the statement in the December number of the *Public Health Nurse* that it was hoped the two public health nurses recently sent to the island would prove "an entering wedge for greater improvements in health," a U. S. Navy nurse writes to the *Army and Navy Register*, "Since 1917 nine carefully chosen Navy nurses have been constantly on duty in the Virgin Islands, working under supervision and in cooperation with naval medical officers." A nursing system has been put into operation in the island of St. Croix and a training school established for native young colored women. There is a large daily attendance at the dispensaries and the infant welfare department numbers several hundred infants up to the age of 2 years. Milk stations have also been established. Under supervision of the Navy nurses, a colored nurse is detailed at the leper colony and another at the insane and jail dispensaries.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 21, 1921.

Improved Vital Statistics

Attention has already been drawn to a great improvement in vital statistics. Some further figures in the subject are of interest. Most of the principal infectious diseases show a constantly diminishing mortality. Thus, the London mortality for typhoid fever per million of population for the years 1869, 1879, 1889, 1899, 1909 and 1919 is, respectively, 350, 220, 125, 175, 70 and 20, and the morbidity rate has fallen in England and Wales from 38 in 1911 to 10 in 1919. The figure for London is 8. This of course, is explained by improved sanitation. In scarlet fever the morbidity remains large but the mortality dwindles. The figures for England and Wales are:

	Morbidity per Thousand Population	Mortality per Thousand Population
1871–1880	....	0.72
1881–1890	....	0.32
1891–1900	....	0.16
1901–1910	....	0.05
1913	3.58	0.3
1917	1.45	0.026
1919	2.29	0.032

Thus, the fluctuations in the morbidity find little reflection in the mortality, which falls steadily. Still more remarkable is the fall in infantile mortality, which includes several factors—measles, diarrhea, poliomyelitis, etc. In England and Wales the deaths per thousand births for 1905 were 128; for 1910, 105; 1911, 130; and for the succeeding years up to 1920 they were, respectively, 95, 108, 105, 110, 91, 97, 89 and 80. The last figure is the lowest on record. The figures for consumption are also encouraging. The morbidity per thousand of the population has fallen from 1912 to 1919: 3.03, 2.65, 2.20, 2.07, 2.1, 2.18, 2.17, 1.81; and the mortality per thousand of population has been, from 1913 to 1919: 1.004, 1.045, 1.161, 1.178, 1.25, 1.343 and 1. For the war years 1915-1919 the figures are higher than they would have been as they refer only to the civil population, the youth of the country having been withdrawn for the army. Finally, there is the crowning fact that the total death rate has fallen from 21.4 in the decennium 1871-1880 to 12.4 in 1920.

Protest by the British Medical Association Against the "Dangerous Drugs Regulations"

The British Medical Association has protested to the home secretary against the new "dangerous drugs regulations." The association admits the necessity for the control of such drugs and, indeed, on several occasions has urged this. It also recognizes that physicians must submit to certain restraints in prescribing, compounding and dispensing such drugs, but it considers that the regulations will have effects beyond those contemplated and that the medical profession will be hampered in its use of the drugs and, on the other hand, that the public will be inconvenienced by delay in obtaining medicines, and that the cost will be seriously

increased. The following regulations are objected to: "Prescription must be in writing." Some physicians typewrite their prescriptions. It is difficult to see that this favors any improper use of the drugs, provided the other provisions as to date, address and signature are carried out. In hospital work it has been found advisable to print prescriptions when a stock mixture is ordered. "The prescription must be marked with the words 'Not to be repeated.'" This appears to be totally unnecessary, as it is fully provided for by other regulations. "A prescription for the use of the drugs must be given by a duly qualified physician, and must comply, etc." This appears to forbid every personal administration of the drugs by the physician or under his direct supervision unless he writes a prescription in each case. In hospital practice, particularly, this would be impracticable. This regulation should not apply to a physician dispensing his own medicines. It is customary to enter all prescriptions in a day-book, showing the name and address of the patient and the date. If this regulation is enforced, it appears that it will be necessary to keep four records of each transaction: (1) the customary record in the day-book; (2) the prescription for the scheduled drug under the regulations; (3) the record of the ingredients in a special book, and (4) the record in a special book for the special drug. The regulations seem to demand that every mixture containing any of the scheduled drugs must have marked on it the quantity contained in it. Nervous and apprehensive patients would hesitate and refuse to take medicines so labeled. Patients would become aware of the drugs they were taking. The objections to this are obvious and have even been recognized in the British pharmacopeia, which disguises some of the preparations of opium by giving them the name of some inert compound. Opium pill is called "Pilula saponis co.," and opium suppository, "Suppositoria plumbi composita." For physicians the regulations are unnecessarily complicated. One book might be substituted for the four books required. The entry of the drugs purchased on the day of receipt is not always feasible. Separate books are required for each set of premises. This would involve a set of books at every branch office and at every physician's private house apart from his main office, as it is necessary to keep a small supply of such things as opium and hypodermic tabloids ready for emergency. The government has been foolish enough to propound these regulations without consulting the medical or pharmaceutical professions. Hence their defects. Already the physician, and especially the panel physician, is hampered in his proper work—the treating of the sick—by having too much of his time occupied in the filling of certificates and the making of records. The government officials whose lives are devoted to such clerical work evidently have an exaggerated idea of its value.

Oversea Settlement

The report of the Oversea Settlement Committee for 1920 has just been published. The committee has learned with satisfaction that the government has decided to hold a conference with the dominion governments on the possibility of initiating a policy of state-aided settlement within the empire. It considers that the fact that numerous ex-service men are unemployed justifies special methods for their relief. But it realizes that it is impossible for the self-governing dominions to receive the unemployed of the mother country, even when they have fought for the empire, except when these governments are satisfied that the men can find suitable work. The government scheme for the grant of free passages has worked well, and it is to be extended for another year. Only a few of the emigrants have failed to find suitable work. The committee adheres to the view expressed last year that state aid should be granted for the settlement of women overseas. A well organized system of juvenile settlement exists in Canada, and a similar one is to be introduced into Australia. Western Australia is negotiating for the settlement of boys from Dr. Barnardo's Homes (homes for waifs and strays founded by the philanthropist Dr. Barnardo). Touching on the shortage of domestic servants, the report says that it is a national danger in Canada and at least as serious in Australia and New Zealand, where the birth rate is affected by the lack of women. The policy of empire settlement, it is pointed out, cannot be successful unless it serves the needs of the empire as a whole and develops the oversea dominions by introducing into them settlers British by birth and tradition. There is a tendency to neglect the fact that unless settlers are carefully selected they are not likely to succeed, and to view emigration as a means of mitigating unemployment, and not as means of building up the empire overseas. On the other hand, there is a disposition in the dominions to approach the subject with the object of meeting "labor" requirements. It is further pointed out that unless the emigrants are given a cordial reception from the people among whom they settle, they are not likely to succeed, and it is therefore recommended that settlement on land should be effected under an organized system of groups. The committee draws attention to the risks of unemployment and destitution to which British subjects are liable in South America.

Lodge Practice in Australia

The council of the New South Wales branch of the British Medical Association has completed negotiations with the friendly societies on the question of increasing the income limits which determine the right of lodge members and their dependents to medical benefit, and the question of increased remuneration. The following new terms have been agreed to: The prescribed income limits to be $1,300 and $1,820 instead of $1,040 and $1,560, as heretofore. The prescribed minimum rates are to be: (*a*) for medical attendance only: in Sydney metropolitan area, $5 instead of $4; outside Sydney, $160 instead of $130. (*b*) For medical attendance and medicine outside Sydney metropolitan area, $220 instead of $320. The fees for attending wives in their confinements or miscarriages are to be increased by $5, making the minimum fee $15.

PARIS

(From Our Regular Correspondent)

Feb. 11, 1921.

An Action for Malpractice; the Responsibility of Physicians

The medical profession has been greatly interested in an action for malpractice that was recently brought at Nimes. Two sisters by the name of Arnaud, aged 14 and 16, respectively, died about three months after the onset of typhoid fever, which followed the ingestion of oysters. The attending physician, Dr. Mazel, was summoned before the Court of Correction of Nimes to answer to a charge of homicide, due to negligence, for having by his imprudent acts been the indirect cause of the death of the two girls named, whom he had treated. The parents of the girls, in filing a civil suit, claimed 200,000 francs damages from the accused. In the meantime, an amnesty act was passed, of which Dr. Mazel took advantage. This act quashed the indictment, which thus became null and void. But the plaintiff would not consider himself beaten. He had been compelled to give up all hope of securing a criminal verdict, but he persisted in his civil suit for damages. The parents affirmed that the death of their daughters had been caused by a general infection that followed the appearance of multiple abscesses in the region of skin punctures made by subcutaneous injections of camphorated oil, strychnin, etc. These punctures had been made by a nurse who had not taken proper antiseptic precautions, and Dr. Mazel, by placing this nurse in charge of his patients, it was claimed, had rendered himself liable. At the trial it

was shown that the nurse had not been installed through the instrumentality of Dr. Mazel. The great interest in the case shown by the medical profession is due to other reasons. Referring to the case, the late Professor Rauzier, of Montpellier, who had been called in bedside consultation to the two patients in question, said: "What would become of the medical profession if, whenever a disaster occurred in a family, the physician and not the disease were to be incriminated?" The fact is, it was shown that the multiple abscesses which the parents—and, not only the parents, but also the expert witness—had attributed to septic skin punctures were located, for the most part, in regions where no injections had been made and were, in reality, related to a peculiar, septic type of the disease.

In preparing his defense, Dr. Mazel had sought the advice of men who are well-known authorities on infectious diseases; more particularly, Professor Fernand Widal and Professor Netter. Both of these men expressed the opinion that multiple suppurations are often observed in protracted cases of typhoid fever; that they may arise entirely independent of any intervention, and, in the case of punctures, in spite of the most rigorous asepsis. Even though technical errors should have been committed by the nurse charged with performing subcutaneous injections, the physician could not be considered responsible, since, by reason of the fact that a certificate had been conferred on the nurse, the assumption was that he was entitled to place reasonable confidence in her. Netter stated that his personal experience confirmed the high mortality of typhoid fever resulting from oysters, and also the serious prognosis of typhoid in girls around the age of puberty. In such cases it is not uncommon to have death result even after intestinal lesions have healed. There is another interesting point. In his report, the expert witness had reproached Dr. Mazel for having increased, to a considerable extent, the number of punctures recommended by the late Professor Grasset, who had been called in consultation. He also reproached him for having introduced into the treatment, after the consultation with Professor Grasset, certain remedies that had not been recommended by the latter, such as caffein and strychnin. To this Widal objected, stating that, after a consultation, the attending physician in the case is always the judge of modifications to be made, in the course of the disease, in the treatment agreed on with the consultant whose counsel he had sought. Fortunately, the court was not swayed by the unfavorable report of the expert witness, but declared that the demand of 200,000 francs damages made by the parents was unwarranted, assessing the costs of the trial to the plaintiffs. This judicial proceeding has shown the danger of entrusting an expert medical decision to a single expert witness. The professional honor, the livelihood and the whole future of a physician may thus depend on the competence and conscience of one man. If the latter does not take his task seriously but acts with prejudice, following preconceived opinions instead of using all possible precautions suggested by scientific medicine, a physician may find his culpability wrongly affirmed by the expert witness. That was true in Dr. Mazel's case, for the court recognized the fact that the report of the expert was incomplete; that at the necropsy, which furthermore was held very late (eleven months after death), he had neglected to examine the heart, the intestine, the kidneys, etc. This proceeding, then, brings out more plainly than ever the necessity of appointing two expert witnesses to render an opinion in a medicolegal controversy. The third Congrès international de médecine légale, held at Brussels, declared in favor of the appointment of two expert witnesses in medicolegal cases, one to be appointed by the court and the other by the defense. The two expert witnesses would have equal authority, and, in case of disagreement, a third expert witness should be called in.

Standardization of Clinical Thermometers

A member of the chamber of deputies has called the attention of the minister of public instruction to the fact that there is a great dearth of clinical thermometers, which works a hardship on patients. He stated that the cause for this state of affairs lay in the defective organization of the service that tests and standardizes these instruments. He requested that the minister of public instruction put an end to the situation, to which communication the minister replied:

At the time the law of Aug. 14, 1918, relative to the control of clinical thermometers, went into effect, it was to be foreseen that the number of these instruments that would be standardized would be very small. From May to December, 1919, the monthly average did not exceed 5,000 instruments. At the beginning of 1920, importations had increased quite perceptibly, in spite of partial restrictions that were enforced, and during the first months of 1920 the monthly average exceeded 15,000. According to information furnished by pharmacists, manufacturers and warehousemen, this figure would have been maintained if the policy in regard to restrictions on importations had not been modified. In view of the foregoing conditions, in order to insure proper functioning of the service, the administration demanded an additional appropriation of 120,675 francs, so that the personnel might be increased, thereby making it possible to bring the monthly output up to 30,000 thermometers, or 360,000 annually; but parliament adjourned in July without voting this appropriation. At the present time, this appropriation is listed among the supplementary appropriations submitted to parliament as of the year 1920. Since July, 1920, the importation of thermometers needed to meet the demand from all sources has been greatly facilitated by the changed attitude of the government, with the result that French commission merchants have taken advantage of the opportunity to lay in a large stock of German thermometers. The available supply of thermometers has thus increased rapidly, as may be seen by the following figures: July, 1920, 84,002; August, 73,482; September, 35,875; October, 91,064; November, 51,447. As a result of the increased importations, the service having charge of the standardization of thermometers has been getting farther and farther behind with its work. At the present time, the stock on hand of untested thermometers exceeds 25,000 instruments. In order to put an end to this situation, which is so fraught with danger to public health, it is important that the supplementary appropriation of 120,675 francs, which was demanded in 1920, be granted at once and that a considerable additional sum be likewise placed at the disposal of the administration for 1921.

VIENNA

(From Our Regular Correspondent)

Feb. 7, 1921.

An Outbreak of Exanthematous Typhus

Within the last few days, an explosive attack of typhus has occurred in this city. Thirty-two persons have been attacked, with four deaths. The first sixteen cases occurred in a group of artists who traveled from the Caucasus Mountains (between Europe and Asia) to this country, and stayed in Odessa for some time. Presently another group of nine persons fell ill, and it was easy to trace this infection to the above mentioned batch of arrivals. All persons that had been in contact with the patients were isolated, and their belongings and lodgings disinfected; meanwhile another seven persons were attacked, in a more sporadic way. The four deaths occurred in weak, underfed members of the group of artists. All necessary precautions were taken to stop further infection and to enlighten the population as to the relative absence of danger, if only the simplest rules of hygiene and cleanliness are strictly adhered to. It is interesting to note that not a single case occurred in regular inhabitants of this city, all patients being fresh arrivals from abroad. Even during the war, we were free from an epidemic of this kind, as lice are virtually unknown among our population.

Appointment of Professor Peham to the Chair of Gynecology

After a long interregnum, the clinic for gynecology and obstetrics is again occupied by an ordinary professor, who will thus take up the regular clinical teaching of students. Professor Peham, whose appointment to this position has been recently announced, was an assistant of Professor Chrobak, and is regarded as one of our best teachers and operators in this subject. Much comment has been raised by the fact that only one of our two vacant clinics has thus been disposed of.

Perhaps it is the secret idea of the government to let the other vacant clinic disappear silently, much in the same way, as the second clinic for psychiatry and the second institute for physiology have not been occupied for many months and are gradually passing into oblivion. This is no doubt due to the scarcity of funds, and to the fact that with the disruption of the empire the number of students is expected to diminish in a large degree, although thus far no such diminution is noticeable.

Intravenous Injections of Sugar in General Anesthesia and Diseases

At a recent meeting of the Vienna Medical Society, Professor Exner explained his experiments in modifying general anesthesia by injecting solutions of various concentrations and compositions into the system. After various preliminary trials on animals, he adopted the following method. A quantity of 40 c.c. of a 25 per cent. solution of glucose was injected intravenously ten or twelve hours before the patient was put under anesthesia. As a rule, ether was taken; in a few instances, a few drops of chloroform were added. The result was most encouraging. The chief features were the absence of the stage of excitation and the ease to get the patient under. Professor Exner selected only such patients as are known to be difficult to anesthetize, chronic alcoholics, patients with thyroid intoxication or valvular disease, and epileptics. The effect of the narcotic wore off quickly, and no untoward effects of the injection of about 10 gm. of glucose—for so much is contained in the dose given—was noticed. It is well known that diabetics are easy to anesthetize, and this observation was also one of the reasons prompting extensive experiments with sugar. The results obtained prompted the investigator to make his preliminary report sooner than was expected, so as to induce other surgeons to give the method a thorough trial. It will be possible only with a large material to ascertain whether there can be any saving of ether or chloroform by the preliminary intravenous injection of sugar. At the same meeting, Professor Stejskal, on whose original experiments these investigations are based, explained how he had come to suppose that a definite "centripetal current" in the tissues is produced by the intravenous injection of hypertonic solutions. A 20 per cent. solution of salt, for instance, has a similar effect, and Professor Stejskal succeeded in influencing beneficially patients with edema of the lungs, congestion of the liver and pneumonia, i. e., whenever it was necessary to produce rapid absorption of exudates and transudates. Acting on the facts thus elucidated, Dr. Prantner tried the injection of glucose (25 per cent.) in the treatment of dermatologic cases (lupus erythematosus, psoriasis and syphilis tarda). He has the impression that the intravenous injection caused a much more rapid effect of the remedies, especially iodin, which are absorbed quickly and can be demonstrated in the secretions after intervals varying between twenty and thirty minutes.

Prostitution and Syphilis in Vienna

Official reports of the police of this city give a clear insight into the extent of secret and public prostitution, which is a severe menace to public health. While the officially controlled women—about 5,000—are subject to a strict examination once every week at least, the clandestine prostitutes, of whom no less than 7,200 were dealt with in 1920, form a serious problem. The police have adopted a method of surprise—visits to the hostelries and hotels where rooms are let for hours to such couples. The women found there are invariably examined at the police station, and if found diseased are brought to a hospital. No less than 28 per cent. were found to suffer from acute venereal disease. This figure, however, has quite another aspect if the age of the females is considered, for more than 44 per cent. of the persons examined were under 21 years of age, those under 18 numbering 20 per cent. of the total. Of the latter, fully 50 per cent. were diseased, while the older persons were better off, only 20 per cent. of them having shown signs of active disease. The younger persons are the more dangerous ones for, as a rule, they are more attractive to the men, and on the other hand they have had little or no experience in keeping themselves free from infection, and do not know how to seek adequate help in case of illness. As a correlative to this report, the board of health published a few interesting figures as to the deaths caused by syphilis. In the years 1911 to 1919, altogether 963 persons died from this cause. The figures for the years beginning with 1911 were: 119, 107, 109, 147. In the year 1915 there was a marked drop to 97; then came 91, 90 and 79; in 1919 the figure went up again to 129. In the first group of years (1911-1919) fully 78 per cent. of the deaths were those of infants under 1 year of age, thus showing the extension of inherited congenital syphilis. From 1914 to 1918, in consequence of the drop of the birth rate owing to the war, the number of deaths from syphilis increased by 63 per cent. This shows clearly that syphilis among the parents increased markedly during the war. In these statistics, only such cases were considered as were manifestly due to syphilis: congenital syphilis or gummas of the brain, syphilitic meningitis, and syphilitic kidney or liver trouble. Cardiovascular disease, probably but not absolutely certain of syphilitic origin, was not considered. No doubt the number of deaths due in reality to syphilis—tabes, general paralysis of the insane, and aortic trouble assume a prominent rôle—is much higher than in the figures given.

Statistics of Contract Practice

The number of krankenkassen or contract practice clubs, to which certain persons must belong (as members) by law, was 887 more in the year 1919-1920 than during the war, if this country as it has been outlined by the peace treaty be considered. The number of their members was 1,248,625, of whom 41.2 per cent. were females. Of each 100 members, 39 became ill in the course of the year, with 48 cases of illness. In the three previous years, the figures were 26.1, 28.4 and 35.8, showing that the health of the members was constantly growing worse. The percentage of mortality in 1919-1920 was 1.57, against 1.05, 1.17 and 1.93 in the previous years. The percentage of labor cases—for maternity benefits are paid to insured female members—was 3.21 against 3.24, 2.59 and 2.28, a rapid rise being distinctly visible, while in the general birth rate of the population a similar rise took place. As regards the financial standing of these sick clubs, the cash balance amounted to 43,625,070 kronen, showing an increase of about 5 per cent. a year regularly for three years. The yearly income amounted to about the same sum (42,725,087 kronen), while the expenditure consumed about 85 per cent. of the income. The sick pay took up 55 per cent. of the income, fees of medical men and administration staff 18 per cent., medicine 12 per cent., and hospital charges 14 per cent. As the expenditures for medical assistance and medicine went up by 100 per cent. in the last four months, the krankenkassen had to raise their membership fees by about 25 per cent. Cooperation of all the clubs is being aimed at to secure uniform fees of the medical men, uniform sick pay classes and uniform membership fees all over the country.

Marriages

FREDERICK AUGUSTINE RUPP to Miss Claire S. Schellenberg, both of Lewistown, Pa., February 17.

MARY ALICE SWAYZE, Bloomsburg, Pa., to Mr. John M. Sampson of Hinton, W. Va., February 9.

HARRY HERR SMILEY to Mrs. Jodie Williams Reed, both of Texarkana, Ark., February 19.

Deaths

William Fiske Whitney, Boston; Harvard University Medical School, 1875; aged 70; a member of the Massachusetts Medical Society; secretary of the medical faculty from 1883-1890; professor of parasitic diseases in the Veterinary School, from 1891-1901, and curator of the Warren Anatomical Museum of his alma mater since 1879; died, March 4.

Paul Green Pope ✠ Grenada, Miss.; Vanderbilt University Medical Department, Nashville, 1916; aged 32; chief of the rural sanitation department of the state board of health; died at the Baptist Hospital, Memphis, Tenn., February 21, from a gas bacillus infection subsequent to an accidental gun-shot wound.

Julius Jackson Barefoot, Graham, N. C.; University of North Carolina, Chapel Hill, 1907; aged 36; a member of the Medical Society of the State of North Carolina; captain, M. C., U. S. Army, and discharged, Dec. 13, 1918; died, February 17, from pneumonia.

Alexander Henry Falconer, Louisville, Ky.; Louisville (Ky.) Medical College, 1897; aged 46; a member of the Kentucky State Medical Association; captain, M. C., U. S. Army, and discharged, March 20, 1919; died, February 19, from heart disease.

Willard Woodard Dicker ✠ Chicago and Oak Park, Ill.; Rush Medical College, 1908; aged 36; assistant professor of medicine in his alma mater; at one time president of the Aux Plaines Medical Society; died, March 1, from pneumonia.

Daniel Joseph O'Connell, Brooklyn; Long Island College Hospital, Brooklyn, 1894; aged about 50; surgeon of the S. S. Advance of the Panama R. R. Steamship Line; died on board the ship at Buenaventura, Colombia, Dec. 26, 1920.

William Scott, Loveland, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 72; at one time mayor, member of the board of education of Loveland, and president of the Clermont County Medical Society; died, February 21.

George F. King, Green Bay, Wis.; Milwaukee Medical College, 1912; aged 31; a member of the State Medical Society of Wisconsin; Captain, M. C., U. S. Army, and discharged, Jan. 27, 1919; died, February 7.

Benjamin Claude Dodds, Sanford, Fla.; College of Physicians and Surgeons, Memphis, Tenn., 1908; aged 39; a member of the Florida Medical Association; died, February 15, following an operation for appendicitis.

John Wesley Dehoff, York, Pa.; Hahnemann Medical College of Philadelphia, 1876; aged 72; for five years professor of obstetrics in the Southern Homeopathic Medical College, Baltimore; died, February 16.

Franklin Pearce Landers, Gadsden, Ala.; Atlanta (Ga.) Medical College, 1883; aged 64; a member of the Medical Association of the State of Alabama; died, February 23, following an operation for appendicitis.

Joseph Riegel Shiley ✠ Lieut., M. C., U. S. Navy, Seattle, Wash.; Northwestern University Medical School, Chicago, 1911; aged 35; died at the naval hospital, Great Lakes, Ill., February 16, from lobar pneumonia.

Thomas Almon Jones, Hutchinson, Kans.; Rush Medical College, 1907; aged 42; a member of the Kansas Medical Society; founder of the Hutchinson (Kan.) Hospital; died in Pasadena, Calif., February 11.

Andrew J. Sanders, Aubrey, Texas; Memphis (Tenn.) Hospital Medical College, 1891; aged 59; was instantly killed, February 16, when the automobile in which he was riding was struck by a passenger train.

John Remington C. Thompson, Bridgeton, N. J.; Jefferson Medical College, 1888; aged 60; a member of the Medical Society of New Jersey; physician of Cumberland County; died, February 17.

Joseph Alexander Venable, White Bluffs, Tenn.; University of Tennessee, Memphis, 1896; aged 47; a member of the Tennessee State Medical Association; died, February 13, from heart disease.

William Joseph Jones, New York; Cornell University Medical College, Ithaca and New York, 1899; aged 47; for ten years instructor in materia medica in his alma mater; died, February 25.

Evan J. Groom, Bristol, Pa.; Jefferson Medical College, 1855; aged 87; a member of the Medical Society of the State of Pennsylvania; at one time coroner of Bucks County; died, February 20.

Abner M. Darling ✠ Crystal Falls, Mich.; Keokuk (Iowa) Medical College, 1892; aged 57; died in St. Petersburg, Fla., February 23, following a colectomy for relief from impacted gallstones.

John I. R. Krozer, Baltimore; University of Maryland, Baltimore, 1848; aged 93; a member of the Medical and Chirurgical Faculty of Maryland; died, February 22, from pneumonia.

Frank A. McGuire, New York; University of the City of New York, 1877; aged 69; a member of the Medical Society of the State of New York; died, February 28, from heart disease.

Edward Moses Child, Brooklyn; University of the City of New York, 1877; aged 69; a member of the Medical Society of the State of New York; died, February 23, from heart disease.

James Scott Johnston, Boston; Harvard University Medical School, 1917; aged 31; lieutenant, M. C., U. S. Army, during the World War; died at Saranac Lake, N. Y., February 20.

Edward H. Garrett, Los Angeles; University of Southern California, Los Angeles, 1899; aged 48; a member of the Medical Society of the State of California; died, February 18.

Andrew Jackson Stevens ✠ Malden, Mass.; Harvard University Medical School, 1869; physician and surgeon of the Malden Hospital; died, February 23, from pneumonia.

Katherine Johnson Jackson, South Livonia, N. Y.; Women's Medical College of the New York Infirmary for Women and Children, 1877; aged 79; died, February 24.

Will T. Atkins, Bates, Ark.; St. Louis College of Physicians and Surgeons, 1907; aged 53; died, about December, 1920, from carcinoma of the tongue.

Walter Perry Ferguson, Santa Ana, Calif.; Eclectic Medical Institute, Cincinnati, 1883; aged 79; a veteran of the Civil War; died, about February 10.

Spencer Howell Stuart ✠ Hornell, N. Y.; Columbus Medical College, 1892; aged 53; died, February 16, from injuries received in an automobile accident.

William T. Fuller, Suffolk, Va.; Leonard Medical School, Raleigh, N. C., 1895; aged 54; a veteran of the Spanish-American War; died, February 5.

Walter Armstrong Cowie, Mikado, Mich.; University of Michigan, Ann Arbor, 1887; aged 57; died, about February 24, from pulmonary tuberculosis.

James Russell Taber, Brooklyn; College of Physicians and Surgeons in the City of New York, 1874; aged 69; died, February 21, from heart disease.

Albert M. Lichty ✠ Salisbury, Pa.; University of Pennsylvania, Philadelphia, 1886; aged 61; died, February 27, from cerebral hemorrhage.

John H. Hayden, Muncie, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1885; aged 80; died, February 13, from pneumonia.

Cornelius B. Dunn, Camden, Ark.; Kentucky School of Medicine, Louisville, 1876; aged 73; a Confederate veteran; died, February 7.

Charles Mount Chandler, Salt Lake City; Eclectic Medical Institute, Cincinnati, 1894; aged 63; died, February 22, from heart disease.

Martin Weller ✠ St. Johns, Mich.; University of Michigan, Ann Arbor, 1881; aged 66; died, February 18, from cerebral thrombosis.

Nelson P. Summer, Van Meter, Iowa; Columbus Medical College, 1887; aged 72; a veteran of the Civil War; died, February 5.

Andrew Maury Woodson, Birmingham, Ala.; University of Nashville (Tenn.), 1900; aged 46; died, February 13, from pneumonia.

Peter Ambrose Larkin ✠ Uniontown, Pa.; Medico-Chirurgical College of Philadelphia, 1900; aged 56; died, February 13.

Thomas M. Hedges, Glendale, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1865; aged 82; died, February 5.

Oscar H. Helbig, St. Louis; Humboldt Medical College, St. Louis, 1864; aged 86; died, February 7, from senile debility.

✠ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED VENEREAL NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the U. S. Department of Agriculture

Orion Pearls S and C Compound.—A quantity of this nostrum shipped in March, 1918, and consigned by the American Druggists' Syndicate, Long Island City, N. Y., was seized by the federal authorities on the charge that the product was misbranded. The Bureau of Chemistry reported that analysis showed it to consist of capsules containing essentially a mixture of oils and resins including cinnamon, santal, copaiba and probably buchu and sulphurated fixed oil. The stuff was falsely and fraudulently represented as effective and useful in chronic and acute gonorrhea and gleet, to stimulate the mucous membranes and stop the discharge in inflammation and catarrh of the bladder and urinary organs. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8129; issued Jan. 25, 1921.*]

Antiseptic Powder.—In January, 1919, a quantity of a product alleged to have been shipped by Henry S. Wampole Co., Baltimore, was seized on the charge that it was misbranded. Analyzed by the Bureau of Chemistry, it was reported to consist essentially of boric acid and alum, with traces of volatile substances including methyl salicylate and indications of menthol. The preparation was fraudulently represented as an effective remedy for catarrh and abnormal discharges such as rheumatic vaginitis, leucorrhea, gonorrhea, gleet, etc., and that it would preserve the health, strength and beauty of those who used it. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8131; issued Jan. 25, 1921.*]

Depurativo D. C.—Eighteen bottles of this product, alleged to have been shipped by R. A. Delgado Carbonell, New York City, to the island of Porto Rico, were seized in September, 1919, on the charge that the stuff was misbranded. The Bureau of Chemistry reported that it consisted essentially of potassium iodid, unidentified plant extractives, alcohol and water. It was declared misbranded, first, because, although it contained 3.4 per cent. of alcohol, the package or label failed to bear a statement to this effect. Further, the following therapeutic claims were, among others, declared false and fraudulent:

"Guaranteed for the treatment of syphilitic diseases, ulcers, herpes, bubo, rheumatism, erysipelas, debility and impoverishment of the blood."

". . . positively infallible in treating all diseases of the skin and blood."

". . . a true destroyer of syphilis whatever may be its form or state."

In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8132; issued Jan. 25, 1921.*]

Gonocol.—In December, 1916, G. J. Fajardo, New York City, shipped to Porto Rico a quantity of a product labeled in part "Gonocol The National Drug Co., Philadelphia, Penna." The Bureau of Chemistry reported that analysis showed it to consist essentially of a watery solution of zinc sulphate, hamamelis water and a small amount of alcohol with 0.38 grain iodin and 0.36 grain protein to each fluid ounce. The claim on the package that "Each fluid ounce represents three grains Proteo-albuminoid compound of Iodin" was false and misleading. Furthermore, it was fraudulently represented that the preparation was indicated in all conditions of the urethra accompanied with a discharge. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8150; issued Jan. 25, 1921.*]

Bouchard Pills.—Martin Rudy, Lancaster, Pa., was alleged to have shipped in January, 1918, a quantity of "Bouchard Pills" which were declared misbranded. The Bureau of Chemistry reported that these pills consisted essentially of iron sulphate and resins with a small amount of oil of cubebs. Some injection tablets, contained in the same package, consisted essentially of zinc sulphate and potassium permanganate. The product was fraudulently represented as effective for the prompt relief of gonorrhea, gleet and discharges from the genito-urinary passages. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8140; issued Jan. 25, 1921.*]

Perlas Urinales-Antisepticas.—In March, 1919, G. J. Fajardo, New York City, shipped to Porto Rico, a quantity of a product labeled in part "Perlas Urinales-Antisepticas Distribuidas por Lawrence-Townley Co., Nueva York." The Bureau of Chemistry reported that the contents of the "pearls" were essentially methylene blue, cubebs and nutmeg. The product was fraudulently represented to be valuable in chronic cases of gonorrhea and blennorrhea, in all cases of stricture, and effective in the treatment of all catarrhal affections of the bladder and for all forms of cystitis. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8152; issued Jan. 22, 1921.*]

Metilol.—Six dozen bottles of "Metilol" being offered for sale in Ponce, P. R., in September, 1919, were seized on the charge that they were misbranded. The preparation was labeled in part: "Metilol Johnson The Logan Pharmacal Co., Philadelphia, U. S. A." The federal chemists reported that examination showed these tablets to consist essentially of hexamethylenamin, nutmeg and cubebs. It was fraudulently represented as an efficient urethral antiseptic and an ideal anti-blennorrhagic specific for the rapid suppression of purulent discharges. Various other equally fraudulent claims were made. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8155; issued Jan. 22, 1921.*]

Montauk Santal Comp.—A quantity of this preparation alleged to have been shipped by G. J. Fajardo, New York City, to Porto Rico, was seized on the charge of misbranding. The capsules, according to the report of the Bureau of Chemistry, were found to contain an average of 3.62 minims of a mixture of oils with approximately 37.5 per cent. of sandalwood oil. It was declared misbranded, first, because, while the label declared the capsules contained 5 minims of sandalwood oil each, they contained only about 3.62 minims each. Furthermore, the product was fraudulently represented as an effective treatment for gonorrhea. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8162; issued Jan. 22, 1921.*]

Physician and Social Worker.—The physician who has charge of a case must, of course, retain the full medical responsibility for it and give to the social worker the medical indications or directions. In the social work appear many problems about which the physician is often little informed. Therefore it is important that the dispensary social worker have a well-recognized right of initiative, provided always that she reports her findings of facts and her suggestions to the physician. No plan for a patient should be adopted unless it is based on the medical opinion and the social facts jointly, as respresented by the physician and the social worker together. —Dispensaries, Davis and Warner.

Correspondence

"THE DOCTOR'S DEFENSE"

To the Editor:—The letter of Dr. F. S. Reilly (The Journal, February 26) with the above title deserves comment because it emphasizes an important objection to group medicine—namely, the danger of cliquism. As Barker has said: "There is nothing, perhaps, more conducive to bad feeling in the profession than the belief that coteries of physicians have set themselves up as superior and exclusive associations that try to monopolize practice. Even when groups are composed of competent, sincere, well bred and fair dealing members, they may excite the envy or the resentment of other groups or of individual practitioners."

Dr. Reilly evidently believes that any argument which presents the advantages of group practice is necessarily an attack on the general practitioner. Nothing could be farther from the truth. The opinion I expressed was that the specialist is quite as much in need of the cooperation offered by group methods as the general practitioner.

No reorganization of our methods could ever supplant the family physician. He is a necessary and vital factor in the public welfare. But his burden must be lightened. No man, however resourceful, however comprehensive his training, can hope to be self-sufficient in the practice of medicine today. It is hoped by many that group methods may help to bridge the ever widening gap between the individual practitioner and the "wonder temple" of the pure science of medicine which Dr. Reilly so ably describes. For those who cannot see the gap there is no hope.

There are no doubt groups which have not dealt fairly with the other physicians of the community. Such a group will be made to realize sooner or later that its policies have doomed it to mediocrity, if not to failure. The group which steadfastly maintains an attitude of sincerity and absolute fair dealing with other physicians, even in the face of evident antagonism, cannot but succeed; while the independent practitioner who is broad enough to utilize the facilities offered him will ultimately leave his irreconcilable confrère far behind.

V. N. Leonard, M.D., Duluth, Minn.

"THE ETIOLOGY OF COMMON WARTS"

To the Editor:—The recent interesting reports in The Journal on the investigation of the etiology of common warts by Kingery (Feb. 12, 1921, p. 440) and Wile and Kingery (Sept. 27, 1919, p. 970) prompt me to call attention to a clinical combination which is undoubtedly familiar to many dermatologists, but which has received little or no mention in medical literature. I refer to the hyperkeratotic verrucose growths that develop as a result of the infection of ordinary corns with verrucae. During the last eighteen months, I have encountered four cases of this type, and in every instance the troublesome little tumors developed following the partial removal of the parent clavus by a chiropodist. The lesions are, of course, located on the typical "corn areas," and in addition to being extremely sensitive and painful, are very difficult to eradicate.

When the outer layers of epidermis are removed, by means of salicylic acid or a similar keratolytic, the little tumors resemble in some respects plantar warts ("papilloma of the sole," first recognized and accurately described by Dubreuilh of Bordeaux, and Bowen of Boston), but the accompanying hypercornification often is puzzling and misleading, and the peculiar, tenacious, semisolid or moist, towlike central portion of the little growths is even more so. My first case superficially resembled a synovial lesion of the skin, and it is probable that the identity of the two disorders occasionally is confused.

With regard to treatment, I have found a salicylic acid paste (20 per cent.), for the removal of the cornified mass, followed by radium, to destroy the verruca, best, although it is possible that fulguration or some destructive chemical agent could be substituted for the radium. Under any circumstances, the wart must be completely eradicated, otherwise recurrence is certain.

Richard L. Sutton, M.D., Kansas City, Mo.

"NEPHRITIS IN CHILDHOOD"

To the Editor:—In The Journal, February 19, Dr. James, in discussing nephritis in childhood, cites the case of a child aged 10, with systolic pressure 139 and diastolic 110, stating that this child had aortic regurgitation. To me this hardly seems possible, the pulse pressure being only 29. May I ask what signs and symptoms led to the diagnosis of the aortic lesion? At the same time I would like to ask just what Dr. James considers a normal blood pressure in childhood, as he states that the cases in this table are not too high. In my limited observation of blood pressure in children under 10 years of age, I have found the readings to be much lower than those cited in his Table 3.

J. W. Shuman, M.D., Sioux City, Iowa.

[The letter of Dr. Shuman was referred to the author of the article, Dr. R. F. James, Boston, who writes:

To the Editor:—The signs and symptoms which led to the diagnosis of aortic regurgitation are given in the report of cases, Case 13, page 508, paragraph 2, of my article. As regards the normal blood pressure, I would refer to the following literature:

1. Judson, C. C., and Nicholson, Percival: Blood Pressure in Normal Children, Observation on Two Thousand Three Hundred Cases, *Am. J. Dis. Child.* **8**: 256 (Oct.) 1914.
2. Berkley, H. K., and Lee, J. M.: Hypertension in Nephritis in Childhood, with a Study of Ninety-Three Cases, *Am. J. Dis. Child.* **13**: 354 (April) 1917.
3. Morse, J. L.: Diseases of Children, Case Histories, Ed. 3, pp. 29-30, Paragraph 3.
4. Kerley: Practice of Pediatrics, 1914, p. 396.

The above literature was used in making my estimate.]

THE CLINICAL PATHOLOGIST AND THE LABORATORY TECHNICIAN

To the Editor:—I have read with considerable interest the communication of Dr. Gradwohl in The Journal, January 8, and of Dr. Boyd, February 19. I feel that in many respects the argument of Dr. Boyd is the better. But both have serious faults. Dr. Gradwohl assumes, so it seems, that the term "technician" is applied to a person whose training has been purely technical, and that such a technician is to be standardized by an examination that will take into consideration training and temperament. Nevertheless, he also seems to assume that such a technician is to be merely the assistant of a medical laboratory worker. If his attitude is correct, then standardization is unnecessary, for routine technicians can be perfectly well trained by the director to do the work to which they are assigned. It may be, of course, that a laboratory which reports on all manner of examinations—serologic, chemical, bacteriologic and pathologic, to say nothing of roentgen ray—has but one medical man in its organization, and that he depends entirely on technicians for all his work. In such a case the director must have the services of very generally skilful technicians, who should certainly have had a minimum of medical preparation—say, for instance, completion of the laboratory courses of the first two years of medicine. Special skill such technicians acquire readily.

Dr. Boyd, on the other hand, assumes, it seems, that what are called "technicians" are to be in charge of laboratories, and that they are to be standardized by graduation from medical schools of acceptable standards. If, as Dr. Boyd assumes, a technician is to be in charge, is to act as a director of a clinical laboratory, then he is quite right that the technician should be a graduate in medicine. Nevertheless, he should be much more than that. In fact, he should not only be a medical graduate, and skilful technically, but he should be a person of somewhat wide experience, directly or indirectly, in clinical work. The ordinary graduate in medicine is almost as unsuited for directing clinical laboratory work as is a trained nonmedical technician. Both lack clinical experience and therefore perspective.

The fundamental trouble with the present situation has, however, little to do with what either Dr. Gradwohl or Dr. Boyd says. It lies in the attempt of the laboratory to make diagnoses. The making of diagnoses is not the function of a laboratory except in comparatively few instances. The function of the laboratory is to give the clinician data on which to make a diagnosis—to add something to the clinical history which will help to exclude or include possibilities in diagnosis.

The clinical pathologist should be looked on as a consultant and not as a technician. When this point of view has been accepted, we shall worry less about the quality of the technician, and scrutinize more carefully the character of the clinical pathologist.

PAUL G. WOOLLEY, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TOXICITY OF APOTHESIN AND OTHER LOCAL ANESTHETICS

To the Editor:—I ask for information relative to the toxicity of apothesin, a local anesthetic manufactured by Parke, Davis & Co. I note that apothesin has not been accepted by the Council, but in New and Nonofficial Remedies it is on the list of articles "described but not accepted." The toxicity is given as absolute toxicity less than cocain (as 20 is to 15). Since H. C. Wood (the elder) in his "Principles and Practice of Therapeutics" gives the amount of cocain that can be safely used locally as three-fourths grain, this would limit the amount of apothesin in local anesthesia to about 1 grain. Last Saturday I referred a patient to a surgeon for extensive resection of a hemorrhoidal area. This was done under local anesthesia, a total of 15 grains of apothesin being used in 1: 100,000 solution of epinephrin chlorid, the operation requiring an hour and ten minutes to complete. There was no evidence of toxic action of the drug at the time or sixty hours after the operation. I am informed by this surgeon, who does much work under local anesthesia, that he frequently uses from 6 to 10 grains of apothesin for an operation, and has never noted any toxic action of the drug.

GEORGE M. ECKEL, M.D., Hot Springs, Ark.

ANSWER.—The statement of H. C. Wood, cited by our correspondent, was made about twenty years ago at a time when the use of epinephrin with cocain and other local anesthetics had not become general. Wood's statement was based on the fact that severe, and even fatal, accidents had been observed in numerous cases following the injection of small doses of cocain.

The relative absolute toxicity of the several local anesthetics refers to that shown when the drug is injected intravenously at once. The toxicity diminishes rapidly with diminution in the rate of entry into the blood stream; hence when procain or apothesin in combination with epinephrin is injected subcutaneously, the vasoconstriction caused by the latter substance delays absorption and lessens the toxicity; this is also true of cocain, but the diminution in toxicity is somewhat less than with procain. Matas (THE JOURNAL, July 31, 1920, p. 318) states that he has observed no ill effects with weak solutions—from 0.5 to 1 per cent.—of cocain with epinephrin, and calls attention to numerous deaths that have occurred with stronger solutions.

That apothesin is not entirely free from danger is indicated by the testimony of various observers cited by the committee of the Section on Laryngology, Otology and Rhinology of the American Medical Association (*Laryngoscope*, July, 1920, p. 443). The following is taken from that report:

Effects from apothesin 1 per cent., neurotic woman, pulse became very feeble, convulsion, unconscious two hours (Lewis).

Apothesin injection 2 per cent., complete collapse, unconsciousness, intermittent contractions of all muscles, Cheyne-Stokes breathing for one hour (Lockhard).

Tendency to syncope in few cases (Royce).

Paleness, increased heart action, three cases became unconscious for two minutes, two cases vomited (Campbell).

The report states that there is a remarkable similarity in the clinical effects and animal experimentation, and that the greatest danger in the use of the local anesthetics lies in too rapid injection or entering a vein.

A death following spinal anesthesia in which 3 grains of apothesin were used is reported by Jay Ireland (THE JOURNAL, Jan. 3, 1920, p. 19). The injection was made with the patient in the recumbent position, and while toxic symptoms referable to the anesthetic, apparently, appeared promptly, death did not result until after the lapse of ten days; hence it is open to serious doubt whether this death can be attributed wholly to the apothesin. In another case (THE JOURNAL, Aug. 28, 1920, p. 605) in which death followed immediately after the intraspinal injection of 1¼ grains of apothesin, there is no doubt that the anesthetic was the cause of death.

It should be remembered that the chief source of danger with the local anesthetics when used in suitable doses arises from individual peculiarities not understood at present. If small doses are used such patients usually escape with minor toxic manifestations, but with large doses death sometimes follows promptly; hence the committee lays stress on slow injections.

FUMIGATION FOLLOWING CONTAGIOUS DISEASES

To the Editor:—I desire to know, in detail, the effective methods of fumigation. I will appreciate your opinion concerning the effectiveness of fumigation following the major contagious diseases.

Health Officer. MILTON O. NYBERG, M.D., Wichita, Kan.

ANSWER.—We take it that our correspondent has especially in mind methods of gaseous disinfection. Disagreeable odors may be masked by various methods of fumigation, even by the oldfashioned method of burning paper or feathers; but the actual germicidal effect of many odoriferous substances amounts to little or nothing. Much experimentation with gaseous disinfectants has eliminated from practical consideration all but formaldehyd and sulphur dioxid.

Formaldehyd will destroy bacteria, including the familiar pathogenic forms, on the surface of objects in an atmosphere containing at least 60 per cent. of moisture and at a temperature above 50 F. It is not efficient in cold, dry rooms, and lacks penetrating power under all circumstances. The cubic space should be known and the room should be thoroughly sealed by pasting strips of paper over all cracks. The Department of Health of the City of New York has used:

Paraformaldehyd	30 gm.
Potassium permanganate	75 gm.
Water	90 gm.

The chemicals are mixed in a deep pan holding about a liter (placed for safety in a larger vessel), the water is added and the mixture is stirred. The amount of formaldehyd evolved is considered sufficient to effect surface disinfection in about four hours in a room of 1,000 cubic feet capacity.

Sulphur dioxid is a less potent germicide than formaldehyd, and possesses other disadvantages. It is, however, a better insecticide, and under certain conditions is used for destroying rats, fleas and other vermin.

The efficacy of formaldehyd room disinfection in actually preventing the spread of infection has been seriously questioned in recent years. There is ground for believing that the share of inanimate objects in spreading disease is not as great as at one time supposed. The available evidence indicates that pathogenic bacteria discharged from the body die off rather quickly under the influence of drying, oxygen and sunlight. The slight impetus given to the destructive process through the use of gaseous disinfectants does not appear to be practically of high value. At all events, the virtual abandonment of routine gaseous disinfection in a number of cities has not been followed by any measurable increase of communicable disease.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

HAWAII: Honolulu, April 11. Sec., Dr. Guy C. Milnor, 401 S. Beretania St., Honolulu.

IDAHO: Boise, April 5. Director, Mr. Paul Davis, Boise.

MINNESOTA: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MONTANA: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.

OKLAHOMA: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

RHODE ISLAND: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

UTAH: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

WEST VIRGINIA: Charleston, April 13. Health Commissioner, Dr. R. T. Davis, Charleston.

Delaware November Examination

Dr. Henry W. Briggs, president, Delaware State Board of Medical Examiners, reports the written and practical examination held at Wilmington, Dec. 14-16, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 6 passed and 2 failed. One candidate was licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1919)	79.9
Temple University		(1918) 76.8, (1919) 80.5,	84.5
University of Pennsylvania		(1919) 88.5, (1920)	86
	FAILED		
Temple University		(1919)	73.9
University of Pennsylvania		(1917)	74.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Maryland Medical College		(1911)	Virginia

Maryland December Examination

Dr. J. McP. Scott, secretary, Maryland State Board of Medical Examiners, reports the oral and written examination held at Baltimore, Dec. 14-17, 1920. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 16 passed and 3 failed. Fourteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1920)	75
Johns Hopkins University		(1907) 84, (1918) (1920) 78, 82, 85, 87, 88	82,
University of Maryland		(1917) 80, (1920)	79, 82
Washington University Medical School		(1920)	85
Jefferson Medical College		(1920)	80
University of Pennsylvania School of Medicine		(1919)	79
University of Virginia		(1920)	82, 88
	FAILED		
University of Maryland		(1917)* (1920)*	
Temple University		(1917)*	

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1912)	Dist. Colum.
Baltimore Medical College		(1891)	Texas
Johns Hopkins University		(1914)	New Jersey
Maryland Medical College		(1910)	Maryland
University of Maryland		(1885) Minnesota, (1897) (1902) Minnesota, (1919)	W. Virginia
University of Michigan		(1916)	Michigan
St. Louis College of Physicians and Surgeons		(1904)	Missouri
Woman's Medical College of the New York Infirmary for Women and Children		(1899)	S. Carolina
Meharry Medical College		(1897)	S. Carolina
University of Vermont		(1911)	Vermont
Medical College of Virginia		(1912)	W. Virginia

* No grade given.

Book Notices

COMMON INFECTIONS OF THE KIDNEYS WITH THE COLON BACILLUS AND ALLIED BACTERIA. Based on a Course of Lectures Delivered at the London Hospital. By Frank Kidd, M.B., B.C., F.R.C.S., Surgeon to London Hospital. With an Additional Lecture on the Bacteriology of the Urine by Dr. Philip Panton, Clinical Pathologist, London Hospital. Cloth. Price, $7.25. Pp. 331, with illustrations. New York: Oxford University Press, 1920.

The author's method is to study certain cases over a considerable time with special means, then to go through the cases and gather together the accumulated facts, and draw such deductions as the facts seem to warrant. This is the second book in a series, the first dealing with common diseases of the male urethra. The title of the present book is a little misleading because it deals with infections of the bladder, prostate and testicle as well as with infections of the kidney, all presumably due to the colon bacillus and allied organisms. It must be said, however, that there is no criterion presented that will permit one to accept the bacteriologic methods employed in the examinations as trustworthy and exhaustive. Nevertheless, the book is a valuable one from the practical point of view because it deals mainly with concrete cases which are fully described, the parts dealing with direct local treatment containing many useful hints to the practitioner. It is of special interest to note that the author has not had satisfactory results in the cases considered with vaccine treatment. The view is advanced that the infections here considered, as well as many others, are in reality autoinfections, infections caused by bacteria that live in other parts of the body and ordinarily do not cause any damage. In the course of his arguments in favor of this view, the author ridicules bacteriologists because, he says, they attempt to sterilize the world, especially in America, "where they attempt to sterilize everything in common use." In another place occurs this statement: "Preventive medicine, headed by the Americans, has gone off in a vain attempt to sterilize our surroundings, to run away from germs, etc." Such vagaries do not tend to inspire confidence in the author's grasp of the principles of bacteriology and pathology.

LABORATORY MANUAL OF THE TECHNIC OF BASAL METABOLIC RATE DETERMINATIONS. By Walter M. Boothby, A.M., M.D., and Irene Sandiford, Ph.D. Section on Clinical Metabolism, The Mayo Clinic, Rochester, Minnesota, and the Mayo Foundation, University of Minnesota. Cloth. Price, $5 net. Pp. 117, with illustrations. Philadelphia: W. B. Saunders Company, 1920.

This book is divided into three sections covering a general discussion of the subject, the details of technic and the methods of calculation. The authors analyze the development of the subject briefly and then give in detail the method of determining the basal metabolic rate, utilizing the Benedict gasometer and the Haldane apparatus. There is an extensive bibliography and an appendix explaining the tables and the methods of calculation; also reproductions of charts for recording data. The book is a valuable one for all those interested in work in this progressive field of modern medicine.

DIAGNOSTIK UND THERAPIE DER MAGENKRANKHEITEN. Von Prof. Dr. I. Boas. Seventh edition. Paper. Price, 138.50 marks. Pp. 671, with 76 illustrations. Leipzig: Georg Thieme, 1920.

Professor Boas' textbook on the diagnosis and treatment of diseases of the stomach has been considered one of the most complete books of its kind. The eighth edition bears out this opinion. It is unfortunate, however, that with rare exceptions, Boas has neglected to consult the reports of American, English and French authors of the last five or six years. Thanks to the work of Carman, Case, Cole and other American radiologists, the use of the roentgen ray in diagnosis of lesions of the gastro-intestinal tract has been placed on a firm foundation. The author comments favorably on the use of the roentgen ray in detecting hour-glass stomach and advanced lesions of the gastro-intestinal tract. He states, however, that when clinical examination is carried out completely, the roentgenologic examination will rarely change the diagnosis. He also warns against laying too great stress on roentgen-ray diagnosis. His nonrecognition of American

authors is likewise seen in his failure to mention fractional gastric contents analysis, although he does refer to the duodenal tube as the Einhorn tube. Despite the work of Moynihan and others, in which the association of pain with hyperacidity has been shown to be due to duodenal ulcer, Boas still continues to believe in the existence of simple hyperacidity as the cause of the trouble.

OUTLINE OF COMMON SKIN DISEASES INCLUDING ERUPTIVE FEVERS. By T. Casper Gilchrist, M.D. Also Diet Plans For Children in Use in the Department of Pediatrics, The Johns Hopkins Hospital. Third edition. Cloth. Price, $1.25. Pp. 40. Baltimore: Students' Book Store, 1920.

This represents the revised notes which have been used in the Johns Hopkins dispensary for fifteen years, and is intended primarily as a guide to diagnosis. Included are methods of examination, regional distribution, a classification of the commoner dermatoses according to primary lesions, and brief notes on the eruptive fevers. The booklet is primarily of the "short cut to diagnosis" type.

Medicolegal

Lawful Procedure to Protect Against Infectious Diseases—Habeas Corpus

(Application of Travers (Calif.), 192 Pac. R. 454)

The District Court of Appeal of California, First District, Division 2, in discharging a writ of habeas corpus and ordering Evelyn Travers, who had been charged with vagrancy, returned to the care of the health officer of the city and county of San Francisco, says that, in view of the record, the petition (which was made by her attorney) for the writ was without foundation. Because of the wide divergence of the statements of fact, it became necessary for evidence to be taken. The matter was referred to a commissioner appointed by the court. The testimony of medical experts on the part of the health officer was direct and positive concerning the infection of the woman by two distinct, infectious and communicable diseases most frequently transmitted through participation in social vice. The evidence of medical witnesses called on behalf of the petitioner was to the effect that when they made examinations the recognized tests failed to show the presence of the specific diseases in question. There was unquestionable evidence that by certain preliminary treatments the tests in cases of admitted infection might be rendered negative of proof for a short period during which an examination might have been made. The court is of the opinion that the finding of the commissioner that the two forms of disease in question were present at the time of the issuance of the writ was sustained by the evidence and was conclusive.

It is a matter of common knowledge that the federal government, the state government and the municipal government are engaged in an effort to prevent the spread of the two diseases in question. The law provides for the isolation of persons suffering from infectious and contagious diseases. Such laws have been upheld in a multitude of cases, and the safety of the community depends on the proper enforcement of health and quarantine regulations. On habeas corpus proceedings the first question, and usually the only one, presented is as to the existence of the power of restraint. In this case the power to isolate persons suffering from the particular diseases, or either of them, cannot be seriously questioned.

An effort was made to show that the police judge had stated that in every such case the woman was sent to be examined by the clinical officer of the public health department of the city, and, if she passed, the case was dismissed. Thereupon it was stipulated by the district attorney that such was the invariable practice, not, however, for the purpose of forcing the women so charged to submit to examination, but to enable the police judge to show leniency to them. Whatever might be said concerning this method of releasing persons charged with vagrancy merely as a matter of leniency, in this particular case it could not be made the basis of a charge of duress. The woman, if satisfied of her innocence, might have submitted to trial and judgment. If she was guilty [of vagrancy] and had been sentenced, she might have been examined even against her will. She chose the easier of the two courses open to her.

It is considered proper in this connection to add that if a person arrested on the charge of vagrancy should appear to be suffering with another disease—smallpox, for instance—and the proceedings followed which took place in this case, the evil consequences to the community might have been frightful to contemplate. Persons petitioning for habeas corpus, particularly when such petitions are made on behalf of another, should be well assured of the facts represented to the court as true. In the present instance the petitioner no doubt erred or was misinformed, but such errors, fraught with danger to the community, should not be made. This statement is considered necessary to prevent anything in this opinion being considered as authority for unwarranted applications for the release of persons properly quarantined under lawful regulations of the public health department.

Annulment of Marriage for Concealment of Mental Condition

(Smith v. Smith (N. Y.), 184 N. Y. Supp. 134)

A Special Term of the Supreme Court of New York, Kings County, holds that the plaintiff was entitled to have his marriage to the defendant, who had become incurably insane, annulled because, when he asked her at the time of his proposal of marriage if there was anything going to come up between them to make life unhappy, she answered "No," and was silent concerning the facts that a brother and sister had been treated for a mental disease in a hospital for the insane, that the sister was still confined in such hospital, and that she had herself been treated for a mental or nervous disorder in an institution in Canada. The court says that persons who have agreed to marry owe an affirmative duty to inform each other of all facts material to their contemplated marriage, not alone because such facts may affect the decision of the contracting parties, but also because the state and the community have an interest by reason of the property rights involved and the possible issue of the union. If either party is unfitted by age, physical condition, mental incapacity or legal disability from being joined in lawful wedlock, that party should not remain silent; there is a clear duty to speak, as such facts are of the very essence of the contract of conjugal union. Silence implies marriageability. The plaintiff having asked the defendant at the time of his proposal of marriage whether there was anything that would make life unhappy, he was entitled to a frank and full disclosure of the defendant's condition. The defendant's purposely withholding information of her own disease of brain or nervous system, and of her insensate brother and of her mentally deranged sister, who was then in an asylum for the insane, was a concealment of material facts constituting a sufficient fraud practiced on the plaintiff to absolve him from the contract and warrant the annulment of his marriage to the defendant.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 21.
American Association of Anatomists, Philadelphia, March 24-26.
American Assn. of Genito-Urinary Surgeons, Richmond, Va., May 2-3.
American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
Arizona Medical Association, Tucson, April 15-16.
Arkansas Medical Society, Hot Springs, May 3-5.
Georgia, Medical Association of, Rome, May 4.
Kansas Medical Society, Wichita, April 26-28.
Louisiana State Medical Society, New Orleans, April 19-21.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-28.
New Mexico Medical Society, Albuquerque, April 28-30.
New York, Medical Society of the State of, Brooklyn, May 3.
North Carolina, Medical Society of the State of, Pinehurst, April 26-28.
Ohio State Medical Association, Columbus, May 3-5.
South Carolina Medical Association, Columbia, April 19-20.
Tennessee State Medical Association, Nashville, April 12-14.
Western Electro-Therapeutic Association, Kansas City, Mo., April 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

January, 1921, **1**, No. 1

Development of Japanese Blood-Fluke, Schistosoma Japonicum Katsurada, in Its Final Host. W. W. Cort, Baltimore.—p. 1.
*Action of Light on Leukocyte Count. J. H. Clark, Baltimore.—p. 39.
Experimental Study of Intracranial Parasitism of Human Lung Fluke, Paragonimus Westermanii. S. Yokogawa and S. Suyemori, Formosa. —p. 63.
*Relationship of Infection by Hookworm to Incidence of Morbidity and Mortality in 22,842 Men of United States Army at Camp Bowie, Texas, from October, 1917, to April, 1918. C. A. Kofoid, Berkeley, Calif. and J. P. Tucker, Cleveland.—p. 79.
*Recent Experimental Studies on Yellow Fever. H. Noguchi, New York. —p. 118.

Action of Light on Leukocyte Count.—Direct radiation of rabbits' ears for short periods (one hour) by an iron arc through different filters has shown that the region of far ultraviolet (wave length shorter than 300 microns) has practically no effect on the absolute number of polymorphonuclears, but produces a very marked lymphocytosis, lasting about three weeks. The near ultraviolet (from 330 to 390 microns) has a marked depressing effect on the lymphocytes, and, to a less degree, on the polymorphonuclears. The region between 450 and 650 microns has a stimulating action on both lymphocytes and polymorphonuclears, particularly on the former. The wave lengths longer than 650 microns (the red and infrared), produce no effect on the blood beyond the drop in lymphocytes which occurs immediately after exposure to light of any kind.

Hookworm Infection.—An examination of one stool for hookworm ova from 22,842 men at Camp Bowie, Texas, made by Kofoid and Tucker disclosed 3,079, or 13.5 per cent., reported positive. The positives show an increase over the so-called negatives, of 27.9 per cent. in men sick, 88.6 per cent. in sick calls, and 76.5 per cent. in hospital admissions. The same general direction of differences between men with and without hookworm appear in data obtained from the majority of individual companies making up two infantry regiments. Positives for hookworm show an apparent increased susceptibility for tonsillitis, laryngitis, bronchitis, pneumonia and measles. The mortality in ten heavily infected organizations, with hookworm above 10 per cent., was 1.5 per cent. In seven more lightly infected organizations, with hookworm below 10 per cent., the death rate was 0.8 per cent. Morbidity and mortality from many causes, and the incidence of mortality from pneumonia, show a general correlation with the incidence of infection by hookworm, being higher, as a rule, wherever that infection is high. The deaths from pneumonia in one regiment with 30 per cent. hookworm infection were 2.6 per cent., as compared with 0.8 per cent. in the remainder of the division in which the infection by hookworm was 10.7 per cent. An increase of 284 per cent. in infection by hookworm in this regiment, as compared with the rest of the camp, is accompanied by a 325 per cent. increase in mortality by pneumonia. Troops from the hookworm area in army camps generally show a higher incidence of pneumonia and measles than do those from other regions. The incidence of these diseases is heavier in men from more heavily infected states, than in those from more lightly infected states.

Studies on Yellow Fever.—A brief review is given by Noguchi of experimental studies on yellow fever made during three expeditions, the first to Guayaquil, Ecuador, in 1918, the second to Merida, Mexico, in 1919, and the last to Piura, Peru in 1920.

American Journal of Physiology, Baltimore

Feb. 1, 1921, **55**, No. 1

Physicochemical Studies on Bioluminescence. VI. Physical and Chemical Nature of Luciferase of Cypridina Hilgendorfii. S. Kanda, Tsuyazaki, Japan.—p. 1.
Studies on Visceral Sensory Nervous System. IV. Action of Certain Drugs on Lung Motor Mechanisms of Reptilia (Turtle, Snake). A. B. Luckhardt and A. J. Carlson, Chicago.—p. 13.
Id. V. Cardiac and Vasomotor Reflexes Induced by Visceral Stimulation in Amphibia and Reptilia. A. J. Carlson and A. B. Luckhardt, Chicago.—p. 31.
Respiratory Quotient and Its Uncertainty. J. A. Fries, State College, Pa.—p. 53.
*Relative Heights of Eating and Drinking Arcs in Pigeon's Brain, and Brain Evolution. A. O. Shaklee, Galveston, Tex.—p. 65.
*Studies in Blood Pressure Estimation by Indirect Methods. III. Movements in Artery Under Compression During Blood Pressure Determinations. J. Erlanger, St. Louis.—p. 84.

Eating and Drinking Arcs in Brain.—A study was made by Shaklee of the eating and the drinking reactions of three pigeons after cerebral ablation, one for seven weeks, one for nearly five months, and the other for almost twelve months. An attempt is made to show how use and disuse may be potent factors in determining the location of brain centers, and certain laws of brain evolution and of education, suggested by the findings in the light of present day knowledge, are tentatively formulated. The findings are made the basis of a new statement of the functions of the cerebrum and of the subcerebral brain.

Studies in Blood Pressure.—Methods are described by Erlanger for recording photographically the movements of points on the exposed artery of the dog while and where it is being decompressed as in making blood pressure observations in man. The findings are discussed.

American Journal of Syphilis, St. Louis

January, 1921, **5**, No. 1

*Latent Infections with Demonstration of Spirochete Pallida in Lymphoid Tissues of Rabbit. W. H. Brown and L. Pearce, New York.—p. 1.
*Strain in Spirochetes. B. P. Thom, New York.—p. 9.
*Syphilis as Etiologic Factor in Nodular Cirrhosis of Liver. L. J. Owen, St. Louis.—p. 20.
Studies in Standardization of Wassermann Reaction. XV. Influence of Temperature and Duration of Primary Incubation on Anticomplementary Activity of Organ Extracts (Antigens) and Serums. J. A. Kolmer and M. E. Trist, Philadelphia.—p. 30.
Id. XVI. Influence of Temperature and Duration of Primary Incubation on Velocity and Amount of Complement Fixation in Syphilis with Different Organ Extracts (Antigens). J. A. Kolmer, A. M. Rule and and E. M. Yagle, Philadelphia.—p. 44.
Id. XVII. Comparative Study of Methods for Conducting Primary Incubation for Complement Fixation in Syphilis with Technic Recommended for a Standardized Test. J. A. Kolmer, T. Matsunami and M. E. Trist, Philadelphia.—p. 63.
Specific Inhibitory Reaction of Cholesterinized Antigens in Wassermann Test. W. A. Hinton, Boston.—p. 81.
Primary Syphilis; Early Diagnosis. C. G. Lane, Boston.—p. 87.
Certain Factors Connected with Toxicologic Testing of Arsphenamin. G. C. Lake, Washington, D. C.—p. 96.
*Statistical Report on Incidence of Congenital Syphilis. L. T. Royster, Norfolk, Va.—p. 131.

Syphilis: Latent Infections.—Six rabbits which had recovered from generalized syphilis were used by Brown and Pearce as the basis for determining whether such animals were still infected and something as to the location of the spirochetes in cases of latent infection. One of the animals was inoculated four years and three months prior to the examination, another nine months, and the others seven months. At the time the examinations were made, all of the animals showed a suggestive adenopathy which was most evident in the popliteal nodes. In addition, two of them showed slight lesions of an indifferent character in which no spirochetes could be demonstrated by dark-field examination. The others showed no lesions. The latent period of infection was of three months' duration in five of the animals and six months in one rabbit. A popliteal node was removed from each of the animals and used for a test inoculation of two normal rabbits. Infection was produced in all cases, the incubation period varying from thirty-one to forty-four days, which is practically the same as that given by lymph node inoculations during active stages of infection and shorter than that obtained from blood inoculations, except in the most active stages of infections. From these facts, it is concluded that rabbits which have recovered from clinical manifestations of syphilis may harbor virulent spirochetes almost indefinitely even though no further manifestations of infection should occur. Moreover, the infectivity of material from the popliteal nodes, taken in conjunction with other evidence of an affinity of spirochetes for lymphoid tissues, is interpreted as indicating that the lymphoid tissues of the body, in general, are probably the chief reservoirs of the virus during latent periods of syphilitic infection.

Strain in Spirochetes.—Thom is convinced that there is no such thing as "strain" in spirochetes. Individual idiosyncrasy, if properly investigated, will account for all the seeming vagaries of the disease. In other words, the selective action of *Spirochaeta pallida* when introduced into the body is governed entirely by the manner in which the tissues of the host react to the invader.

Syphilis as Cause of Nodular Liver Cirrhosis.—Among 1,200 necropsies analyzed by Owen he found that 8.5 per cent. of all adults had cirrhosis of the liver, and of these, 80 per cent. were of the nodular type. There were three instances of typical syphilitic cirrhosis, characterized by deforming bands of scar tissue. One instance of obstructive cirrhosis with suppurative cholangitis caused by calculi lodged in the common duct, and one instance of primary carcinoma of the liver with cirrhosis were noted. The clinical histories were studied and a table has been made showing factors which might have had a part in bringing about the liver condition. Associated lesions possibly resulting from the same causes as cirrhosis are enumerated.

Incidence of Congenital Syphilis.—Of 1,000 children coming to a free clinic, on whom Wassermann tests were made, 12.5 per cent. gave a positive reaction, colored, 15.47 per cent.; white, 7.04 per cent.

Archives of Dermatology and Syphilology, Chicago

February, 1921, **3**, No. 2

*Dissemination of Spirochaeta Pallida in Experimental Syphilis. F. Eberson, St. Louis.—p. 111.
Visceral Syphilis: Syphilis of Spleen. U. J. Wile, Ann Arbor, Mich. —p. 117.
Visceral Syphilis: Syphilis of Pancreas. U. J. Wile, Ann Arbor, Mich. —p. 122.
*Secondary Syphilitic Infection. C. M. Williams, New York.—p. 126.
Physical Basis of Radium Therapy. G. Failla, New York.—p. 133.
*Digestion of Keloids, Cicatrices and Buboes with Pepsin-Hydrochloric Acid. E. Ahlswede, Hamburg, Germany.—p. 142.
(A) Von Recklinghausen's Disease in Negro; (B) Curvature of Spine in Von Recklinghausen's Disease. R. S. Weiss, St. Louis.—p. 144.
Fibromyxoma—Probably a Linear Nevus. E. J. Eichenlaub, Washington, D. C.—p. 152.
Case of Multiple Idiopathic Hemorrhagic Sarcoma (Kaposi). K. P. Front, Los Angeles, Calif.—p. 155.

Dissemination of Spirochaeta Pallida.—*Spirochaeta pallida* has been isolated by Eberson from the blood stream of experimentally infected rabbits, seven, ten and thirty days after intratesticular inoculation, at times corresponding to twenty-six, twenty-three and three days prior to the appearance of any initial lesion. The regional lymph glands of rabbits have been found to contain active virulent *Spirochaeta pallida* seven days after inoculation of the rabbit's testicle and twenty-six days before any primary lesion had appeared. The spleen has been shown to contain the spirochete more than two months after the inoculated testicle had healed entirely and has been found free from spirochetes by repeated puncture and direct inoculation of the excised testicle into other rabbits. For confirmation of experimental work and for the diagnosis of suspicious syphilitic material which cannot be studied microscopically, it appears that the method suggested by these studies might be employed to advantage. With early invasion of the lymph glands and blood stream established definitely during the incubation period of syphilis in animals, the theory of a life cycle of *Spirochaeta pallida* is weakened considerably. The absence of organisms, as judged solely by microscopic findings, is not convincing proof that a change of form has taken place within the animal body. That this spirochete is found unaltered both in morphology and in virulence in the blood and glands Eberson thinks is sufficient to render the theory untenable.

Secondary Syphilitic Infection.—In Williams' case a typical infection was treated according to accepted methods in August, 1916. Three Wassermann tests between September and Dec. 15, 1918, were said to be negative. Nov. 19, 1919, the patient returned with a penile sore of four weeks' duration, occurring on the site of the original primary lesion. The Wassermann reaction was negative November 19, and again on December 3. Darkfield examination made November 19, revealed no spirochetes, presumably on account of the use of an antiseptic dressing. Microscopic examination December 12 revealed both *Spirochaeta pallida* and the Ducrey bacillus.

Digestion of Keloids.—The solution used by Ahlswede consisted of: pepsin, 10 c.c.; muriatic acid, 1 c.c.; phenol, 1 c.c.; distilled water to make 200 c.c. Phenol was added in order to prevent possible putrefaction of the decaying tissue. Compresses of absorbent cotton soaked in this solution were applied and then covered with an impermeable cover in a large number of cases. The cosmetic effect on scarring after burns was excellent. In many cases of fresh scars no trace was left after a systematic application of the digesting method. These successes led to the local treatment of ulcus durum. The induration was digested by similar compresses. These were cases in which after a thorough arsphenamin treatment the initial sclerosis had healed perfectly, yet a certain obstinate hardness remained which would not give way to the strongest antisyphilitic treatment. Ahlswede also treated cases of adenitis caused by different infections, such as buboes following soft chancre. Almost every patient treated showed a regression of the inflammation within from two to three weeks without an incision being necessary. The general treatment of all masses and packets of tuberculous glands in children, especially those of the throat and neck was next undertaken. In these cases, pepsin compresses represented a good substitute for surgical treatment, the more so as the incision of tuberculous glands is not in all cases free from risk.

Archives of Internal Medicine, Chicago

Feb. 15, 1921, **27**, No. 2

*Cardiorespiratory Mechanism in Health and Disease. R. G. Pearce, Akron, Ohio.—p. 139.
Effect of Irradiation of Suprarenal Region in Rabbits with Roentgen Rays. G. P. Grabfield, Boston, and T. L. Squier, Ann Arbor, Mich. —p. 168.
*Tendency of Carcinoma of Pancreas to Spread by Blood-Vascular Invasion. F. D. Adams, Washington, D. C.—p. 175.
*Bronchial Asthma: Response to Pilocarpin and Epinephrin. H. L. Alexander and R. Paddock, New York.—p. 184.
*Angina Pectoris; An Electrocardiographic Study. F. A. Willius, Rochester, Minn.—p. 192.
*Studies on Renal Threshold for Glucose. K. Goto and N. Kuno, Tokyo, Japan.—p. 224.
*Effect of Antisyphilitic Treatment on Colloidal Gold Reaction. M. Warwick, Minneapolis.—p. 238.
*Sinistrality in Relation to High Blood Pressure and Defects of Speech. C. Quinan, San Francisco.—p. 255.
Significance of Embolic Glomerular Lesions of Subacute Streptococcus Endocarditis. G. Baehr, New York.—p. 262.

Cardiorespiratory Mechanism in Health and Disease.—It is shown by Pearce that in normal men the volume of alveolar ventilation and the volume of oxygen absorbed increase proportionately at moderate levels of physical exertion. The volume of the cardiac output likewise varies directly with metabolism and alveolar ventilation at moderate levels of work. At levels of work in which the cardiac output is less than theoretically demanded, the factors of safety found in gaseous carrying power of the blood, the increased venous pressure due to increased tone of muscles, etc., and the power of the body to superventilate the lungs—come into play. When these added factors can no longer compensate for the disproportionately small bloodflow, effort cannot be sustained, and a lower level of body activity must be found. This study of the cardiorespiratory metabolic function had as its prime object the development of methods which might be used in the clinic for the interpretation of cardiorespiratory disease. The method developed is still poorly adapted for general clinical work, but nevertheless, has given data which afford a broader viewpoint of the subject of cardiorespiratory dynamics. The method has emphasized the importance of the singleness of the function of the circulation and respiration in the nutrition of the body and has shown the need of a closer appreciation of the fact in the teaching of the normal and pathologic physiology of these systems.

Spread of Carcinoma of Pancreas.—Eight cases are analyzed by Adams. Two cases which on microscopic examination proved to be scirrhus carcinoma showed no metastases, but in the remaining six cases, a secondary involvement of the liver was present in all, and regional lymph nodes were affected in all but one. The lungs of five of the six patients were involved, the stomach was in four and the duodenum in four cases, the two latter apparently by direct invasion rather than by metastasis. In three cases there were metastatic

foci in the suprarenals and in a fourth case direct invasion of the left suprarenal occurred. The brain was examined in only two cases; secondary growths were found in both. In these two cases there was a generalized carcinomatosis, involving almost every organ. The features on which emphasis is laid are: (1) the tendency of these tumors to invade the blood stream locally; (2) the occurrence of generalized carcinomatosis by blood dissemination, and (3) the signs caused by secondary growths in two patients which obscured the clinical picture. There was definite evidence of dissemination by way of the blood stream in two cases of adenocarcinoma, and in two others there was invasion of the portal vein or its branches, in which, however, no generalized distribution of tumor foci occurred.

Bronchial Asthma: Response to Pilocarpin and Epinephrin.—In a series of twenty cases of bronchial asthma in which a general examination with routine laboratory aids and drug tests, no constant associated condition was found. The most frequent finding was abnormally increased sensitiveness to pilocarpin. The majority of cases reacted also to epinephrin with an abnormal rise in blood pressure and other characteristic signs — pallor, tremor, sometimes rigor — denoting increased sensitiveness to this drug. A relation between low blood pressure and excessive epinephrin reaction was apparent, while the smaller number of cases with normal or high blood pressure gave regularly normal reactions. Cases reacting excessively to epinephrin were found to be relieved by 0.25 c.c., a much smaller dose of the drug than is usually employed.

Electrocardiography in Angina Pectoris.—A study of 155 cases of angina pectoris is reported on by Willius. Nineteen patients had recognizable aortic lesions, four of which were of syphilitic origin. Seven patients had aortitis, four had aortic regurgitation, five had aortitis and aortic regurgitation, two had aortic stenosis, and one patient had an aneurysm of the descending aorta. Seven patients having syphilis did not have clinical evidence of aortic disease, although the heart was invaded by disease. Two patients had mitral stenosis. The remaining 134 patients had indeterminate pathologic lesions. No electrocardiographic findings pathognomonic of angina pectoris were noted. Significant T wave negativity occurred in one third of the electrocardiograms. Abnormalities in T wave contour affecting both the positive and the negative wave are significant. Abnormal Q R S complexes in all derivations of the electrocardiogram occurred in 14.2 per cent. of the records. The cardiac mortality of the complete group was 46.7 per cent., definitely contrasted by the higher mortality attending those patients having significant T wave negativity (70.3 per cent.) and abnormal Q R S complexes in all derivations (62.5 per cent.) of their electrocardiograms.

Renal Threshold for Glucose.—Investigations were made by Goto and Kuno on fifty-five healthy subjects. It was found that thirty-three eleminated sugar after having taken 100 gm. glucose, but that the quantity eliminated was very small. Twenty-eight of the thirty-three showed no abnormal hyperglycemia and in some cases the renal threshold for glucose was clearly low. It is clearly evident, when the threhold for glucose is lowered, that the lower the threshold the more easily sugar is eliminated in the urine after a carbohydrate diet. If the threshold is severely affected, then sugar will be excreted in the urine even when the sugar in the blood is normal or very slightly higher than normal. Since the renal threshold for glucose is sometimes lowered even in some normal persons, careful attention should be paid to the diagnosis of so-called mild diabetes, in which slight glycosuria is present after meals, and in which no clinical symptoms are noted. To diagnose mild diabetes and renal glycosuria, it is necessary to examine not only the excretion of the sugar in the urine, but also the sugar in the blood after the glucose test has been made, and to study carefully the renal threshold for glucose.

Effect of Antisyphilitic Treatment on Colloidal Gold Reaction.—Warwick states that the colloidal gold reaction shows a tendency to decrease under the influence of antisyphilitic treatment, but may remain unchanged or even increase in intensity. The more pronounced the colloidal gold curve, the less it is affected by treatment. On the other hand, the lower curves are more readily brought down to normal. The colloidal gold reaction does not parallel or follow the clinical symptoms of the progression or regression of the disease. If the colloidal gold curve changes after treatment, it increases or decreases in intensity and occasionally drops back into another zone, but is usually a symmetrical curve and does not become atypical. The Nonne and Wassermann reactions tend to parallel the colloidal gold curve in its behavior to treatment and in the provocative reaction.

Sinistrality and High Blood Pressure.—The literature of the subject is reviewed by Quinan and he presents the results of an investigation of left-handedness in relation to high blood pressure and speech defects. Among 600 men examined forty-two sinistrals were found. High arterial tension was found to occur more frequently in left-handed than in right-handed people. Evidence is submitted that left-handedness is hereditary, and that it indicates a defective organization of the central nervous system. Hence it is concluded that hereditary predisposition is a definite factor in the etiology of high blood pressure, and that high arterial tension is suggestive of constitutional inferiority. As compared with dextrals, stammering occurs in sinistrals with a frequency from three to seven times greater.

Boston Medical and Surgical Journal

Feb. 24, 1921, **184**, No. 8

Seminal Vesiculitis: Its Local and General Manifestations. J. H. Cunningham, Boston.—p. 189.
*Primary Disease of Pelvic Lymph Glands. An Unrecognized Gynecologic Condition. J. T. Williams, Boston.—p. 194.
*Fascia Used to Mobilize a Stiff Knee Resulting From Gun Shot Wound. L. A. O. Goddu, Boston.—p. 198.
Defective Delinquents in Army of Occupation of American Forces in Germany. How They Are Treated in Disciplinary School. L. V. Briggs.—p. 202.

Primary Disease of Pelvic Lymph Glands.—Primary enlargement of the pelvic lymph glands Williams claims is a distinct clinical entity not generally recognized in gynecology. He cites three cases. The diagnosis is to be based on a pelvic mass definitely not connected with the uterus or its appendages, giving rise to pain and tenderness referred to the iliac fossa of the affected side, with or without elevation of temperature, and with or without psoas spasm on the affected side. The white count in the few cases so far observed has been only slightly elevated.

Fascia Lata Used to Mobilize Stiff Knee.—Goddu used a piece of fascia lata to replace a destroyed portion of the knee joint capsule. The entire skin fascia and capsule were adherent, as well as patella. All adherent tissue was lifted up from the bone and the joint exposed. A portion of the articulating surface of the femur was destroyed. The final result was entirely satisfactory.

California State Journal of Medicine, San Francisco

February, 1921, **19**, No. 2

*Size of Women: Special Reference to Height. C. D. Mosher, Palo Alto, Calif.—p. 53.
Relationship Between Trauma and Malignant Disease from an Industrial Viewpoint. W. Ophuls, San Francisco.—p. 54.
How Can Medical Service be Improved. M. R. Gibbons, San Francisco. p. 56.
Bilateral Nephrolithiasis. G. W. Hartman and S. A. Goldman, San Francisco.—p. 59.
Urinary Incontinence and Its Operative Repair. J. R. Dillon, San Francisco.—p. 61.
Industrial Medicine. R. T. Legge, Berkeley.—p. 64.
Industrial Surgeon, What He Is—What He Can Be—What He Should Be. G. M. Barrett, San Francisco.—p. 68.
Deformities of Hand Acquired After Accidents. A. Gottlieb, San Francisco.—p. 72.
Examination of Employees in Industry. C. A. Dukes, Oakland.—p. 74.
Roentgen-Ray Treatment of Uterine Hemorrhage. L. C. Kinney, San Diego.—p. 76.
Heat Most Practical and Promising Treatment in Uterine Carcinoma. J. F. Percy, San Diego.—p. 78.
Nasal Catarrh. C. A. Phelan, San Francisco.—p. 81.
Advance in Business Methods. P. A. Jordan, San Jose.—p. 84.

Size of Women.—A popular belief seems to be prevalent that women are increasing in size. This idea has, apparently, received some confirmation from the study of 4,023 of the women who entered Leland Stanford, Jr., University dur-

ing the past thirty years which shows that the average height of the women of today has increased from 1 to 1.1 inches. There is also a definite increase in the average weight.

Colorado Medicine, Denver

February, 1921, **18**, No. 2

Special Points in Surgery of Gallbladder and Ducts. G. W. Crile, Cleveland.—p. 28.
Correlation of Psyche and Gastric Function. J. L. Mortimer, Denver. p. 32.
Ophthalmoscopic Pathology. E. Jackson, Denver.—p. 34.
Relationship Between Ocular and Dental Disease. W. H. Crip, Denver. —p. 37.
Mastoiditis in Acute Otitis Media. W. C. Bane, Denver.—p. 38.

Journal of Mental and Nervous Diseases, Lancaster, Pa.

January, 1921, **53**, No. 1

*Acute Meningitis and Tuberculous Meningitis. L. Morquio, Montevideo, Uruguay.—p. 1.
*Syphilis and Regeneration. B. P. Thom, New York.—p. 8.
Three Types of Spinal Cord Injuries in Warfare. H. Viets, Boston.—p. 18.

Tuberculous Meningitis.—Eighty cases of tuberculous meningitis seen by Morquio have followed grip or have appeared a short time after it, grip having been the cause only occasionally. One patient had had pneumonia a month before. Meningitis appeared suddenly and death occurred within forty-eight hours. Another patient convalescing from pneumonia was taken ill suddenly within a week, and twelve hours later he was dead. At the necropsy supuration of the meninges was found. The pus contained only the pneumococcus. In two cases the meningococcus was associated with the pneumococcus. In some cases only the streptococcus was present. In the tuberculous cases, the tubercle bacillus was found in 80 per cent. of the cases. The mortality in these cases was 100 per cent.

Syphilis and Regeneration.—Thom is firmly of the opinion that syphilis is largely responsible for idiocy and imbecility. The child may be born of syphilitic parents; it is apparently healthy, but in reality the syphilis is asymptomatic. The child may show normal development up to the age of 10 or 12; then, without apparent cause, its mentality begins to deteriorate. The first sign may be mental fatigue.

Journal of Urology, Baltimore

January, 1921, **5**, No. 1

*Trauma as Factor in Etiology of Hydronephrosis (Pyelectasis). F. C. Herrick, Cleveland.—p. 1.
Urologic and Venereal Idiosyncrasies Presented by Negro. G. H. Day, Louisville, Ky.—p. 19.
*Physiologic and Pharmacologic Studies of Prostate. III. Effect of Prostatectomy on Behavior of Albino Rats. D. I. Macht and W. Bloom, Baltimore.—p. 29.
*Vas Puncture as Means of Cure for Chronic Seminal Vesiculitis: Report of Fifty-Five Cases. R. E. Cumming and J. E. Glenn, Washington, D. C.—p. 43.
*Treatment of Gonorrheal Complications by Combination of Antigonococcus Serum and a Temperature-Raising Agent. J. Reenstierna, Stockholm.—p. 63.
Value of Pyelography in Diagnosis of Neoplasms of Kidney. J. A. C. Colston, Baltimore.—p. 67.

Trauma as Factor in Etiology of Hydronephrosis.—As a name fitting the condition termed hydronephrosis, Herrick suggests pyelectasis because it fits and is descriptive. The term pyonephrosis should be retained, for in this condition the entire kidney is involved in the infective process. Pyopyelectasis expresses dilatation with pus as a contents, and together with hemopyelectasis and uropyelectasis accurately describes well recognized clinical conditions. In order to find the relation of trauma to other factors, Herrick has worked out a classification of the etiology of pyelectasis. The action of trauma toward producing pyelectasis is considered under the heads of (1) renal mobility; (2) ureteral fixation; (3) accessory structure; (4) hemorrhage; and (5) scar formation.

Relation of Prostate to Mental Efficiency.—The observations made by Macht and Bloom lead to the conclusion that the endocrine function of the prostate gland bears no relation to the mental efficiency of animals.

Vas Puncture to Cure Chronic Seminal Vesiculitis.—Cumming and Glenn treated fifty-five cases by Belfield's method —filling the diseased vesicles, through vas puncture with a 5 or 10 per cent. collargol solution. The end results were: forty patients were returned to duty within three weeks, apparently permanently cured. The remaining fifteen patients, who required treatment of prostate and urethra also, were cured within six weeks, with one or two exceptions. The series included four cases of gonorrheal arthritis.

Antigonococcus Serum in Treatment of Gonorrheal Complications.—Reenstierna now prepares a polyvalent antigonococcus serum by means of intravenously immunizing rams with living gonococcus cultures. In the case of the usual infection of the mucous membrane (of the urethra, the cervix, the excretory ducts of Bartholin's glands, the conjunctival sac, etc.), in short, in the so-called open gonorrhea, no decrease in the number of gonococci could be ascertained. As regards the gonorrheal complications (closed gonorrhea), e. g., arthritis, epididymitis, prostatitis, diseases of the eyes and adnexes, infiltrations of the Bartholin glands and periurethral infiltrations, in most cases painful symptoms had obviously decreased or completely disappeared after five or six hours, sometimes earlier. This improvement was either temporary or it progressed, on repeated injections, more or less rapidly to a partial or complete cure. Only a few cases were quite refractory. Reenstierna has added to the serum a certain quantity of some temperature-raising agent—dead cultures of typhus bacilli. With this preparation, based on the double principle of action of antibodies and fever, trials have been made in more than a 100 cases of different gonorrheal complications (particularly arthritis, epididymitis and prostatitis). The most serious cases of fresh arthritis have after one or two injections gone to complete cure in from one to two weeks. In many cases, in which the gonococcus vaccine had had no effect at all (not even after some ten injections), a treatment with serum has been followed by an obvious improvement at once. In some few cases, neither a previous treatment with gonococcus vaccine nor a later treatment with gonococcus vaccine nor a later treatment with serum has been of any use (secondary infection?). Most often cases of prostatitis have been cured in one week. The same rapid response was noted in epididymitis. A large gonorrheal cutaneous abscess in the perineal region healed after a single injection in one week. The untoward effects of the serum treatment are chills and high fever after the injection, considerable tenderness at the site of injection (the gluteal muscles, persisting for some days, and at times a passing tenderness in the inguinal lymphatic glands.

Kansas Medical Journal, Topeka

February, 1921, **21**, No. 2

Cesarean Section Under Local Anesthesia; Report of Three Cases. W. E. Mowery, Salina.—p. 39.
Poliomyelitis. E. O. Ebright, Wichita.—p. 41.
Melancholy and Melancholia. K. A. Menninger, Topeka.—p. 44.
Sanatorium Treatment of Pulmonary Tuberculosis. J. A. Milligan, Garnett.—p. 50.
Endocrinopathy as Related to Some Diseases of Obscure Etiology. F. A. Carmichael.—p. 52.
Law for the Doctor. Physician's Right of Recovery of Emergency Service Rendered Unconscious Person. L. Childs.—p. 56.

Medical Record, New York

Feb. 26, 1921, **99**, No. 9

Relation of Medical Profession to Community. G. G. Ward, Jr., New York.—p. 337.
*Diaphragmatic Hernia. J. Hajek, New York.—p. 339.
History of Discovery of Duodenal Intubation. J. C. Hemmeter, Baltimore.—p. 341.
Speaking of Specialists. I. C. Philbrick, Lincoln, Neb.—p. 345.
Concept of Roentgen-Ray Pathology. VII. Craniopathies. A. J. Pacini, Washington, D. C.—p. 348.
Fallacies in Diagnosis and Treatment of Some Genito-Urinary Conditions. P. S. Rosenblum, Philadelphia.—p. 352.

Diaphragmatic Hernia.—The diagnosis of strangulated diaphragmatic hernia was made by Hajek in this case. The patient died. On opening the thoracic cavity the left lung was found to be compressed, occupying the apical cavity only. The remaining portion of the chest cavity was occupied by the stomach, markedly distended, the splenic flexure of the colon, about 2 inches of the transverse, and 2 inches of the descending colon, covered with a portion of the omentum. The left dome was poor in musculature and very thin. In

the left lumbar costal area was a smooth-edged opening, lined with a tendon-like structure, which blended into the surrounding tissues and admitted five fingers freely. The hernia was in a sac formed by peritoneum and pleura.

Michigan State Medical Society Journal, Grand Rapids

February, 1921, **20**, No. 2

Myxedema. T. A. McGraw, Jr., Detroit.—p. 27.
Neurotic Patient. I. H. Neff, Detroit.—p. 30.
Rôle of Basal Metabolism in Diagnosis and Treatment of Hyperthyroidism. H. A. Freund, Detroit.—p. 35.
Focal Infection. C. A. Teifer, Muskegon.—p. 37.

Minnesota Medicine, St. Paul

February, 1921, **4**, No. 2

Compulsory Health Insurance and Medical Profession. F. L. Hoffman, Newark, N. J.—p. 63.
Acute Gonorrheal Urethritis. L. W. Bremerman and M. McKellar, Chicago.—p. 68.
*Cysts of Pancreas. E. S. Judd, Rochester, Minn.—p. 75.
Electrocardiograms in Thyrotoxic Conditions. G. C. W. Stein, St. Paul.—p. 82.
Organization of Medical Schools and Hospital Facilities for Graduate Medical Education. E. P. Lyon, Minneapolis.—p. 90.
Treatment of Early Pulmonary Tuberculosis. W. J. Marcley, Minneapolis.—p. 96.

Cysts of Pancreas.—The basis of Judd's paper is a series of forty-one cases of cysts of the pancreas. In thirty-eight cases operation was performed for the cysts, and in three cases the cysts were discovered during an operation for some other condition. In many of the cases it was difficult for the operator to locate the cysts with relation to the surrounding structures and to determine whether they were true pancreatic cysts or so-called pseudocysts. The exact nature of the true cyst could not be determined in many cases as it was impossible to demonstrate obstruction to the ducts such as would cause retention cysts and since in most cases the destruction of the tissues within the cysts was so great that we could not know whether the tumors were cystadenomas or simple cysts. In only two cases were the tumors malignant or associated with malignancy of the pancreas. There was one dermoid cyst. It contained hair and one tooth. The cyst arose in the tissue in the body and tail of the pancreas. It was possible to remove the entire cyst and affect a cure. One true hemorrhagic cyst was found, although there was no history of trauma in this case; the condition appeared soon after confinement.

Neurological Bulletin, New York

January, 1921, **3**, No. 1

Clinical Endocrinology. W. Timme, New York.—p. 3.
Mental Hygiene and Education. B. Glueck, New York.—p. 34.
Brown-Sequard Syndrome Produced by An Old Cervical Tuberculous Spondylitis. I. J. Sands, New York.—p. 41.

Ohio State Medical Journal, Columbus

February, 1921, **17**, No. 2

Blood Chemistry and Other Laboratory Tests in Nephritis. J. J. Coons, Columbus.—p. 77.
Fallacy of Depending on Single Test for Kidney Function. S. Englander, Cleveland.—p. 82.
Ten Minutes with Urine. J. H. Dowd, Buffalo.—p. 85.
*Polycystic Kidney. F. C. Herrick, Cleveland.—p. 89.
Resume of Treatment of Eclampsia. M. A. Tate, Cincinnati.—p. 93.
Treatment of Sixty-Four Cases of Eclampsia. W. D. Inglis, Columbus.—p. 96.
Treatment of Eclampsia. C. E. Updegraff, Akron.—p. 99.
Operation for Empyema in Young Adults. F. E. Bunts, Cleveland.—p. 101.
Cesarean Section; Its Indications and Technic. A. J. Skeel, Cleveland. p. 103.
Ophthalmic Case Record System. B. King, Toledo.—p. 107.

Polycystic Kidney.—Herrick reports one case which illustrates the hereditary tendency of this pathologic condition. All previous cases in the family occurred on the mother's side as follows: mother's father died at 55; mother at 38; two aunts (mother's sisters) at 46 and 52, respectively; one cousin at 45; one brother at 35; one sister at 38. Of these eight cases, the diagnosis of six was proved by necropsy. Of the eight cases (including the patient) five were females and three males. The patient had lost three infant children, causes unknown, and had one daughter living and well. The main complaint in Herrick's case was indigestion. The gastrointestinal symptoms were quite typical of duodenal ulcer. The urinary history was that of hematuria. Death occurred from pneumonia. Necropsy showed both kidneys to be polycystic. Three other cases are also reported. In one, the diagnosis of polycystic kidney was verified at the necropsy. In this case the chief complaint was dizziness, which is noted in the literature as a characteristic primary complaint. It was the major complaint in two of Herrick's cases.

Philippine Journal of Science, Manila

September, 1920, **17**, No. 3

New or Noteworthy Philippine Plants. XVI. E. D. Merrill.—p. 239.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

December, 1920, **37**, No. 141

Medicine and Surgery. L. E. V. Every-Clayton.—p. 193.
*Diagnosis of Torsion of Great Omentum. J. Swain.—p. 202.
Clinical Significance of Adsorption Phenomena. O. C. M. Davis.—p. 205.
Tuberculosis and Consumption in Relation to Public Health. D. S. Davies.—p. 211.

Torsion of Omentum.—Two cases are recorded by Swain. Clinically the symptoms were largely of an inflammatory character. The first case resembled an attack of cholecystitis and the second case resembled appendicitis.

British Medical Journal, London

Feb. 5, 1921, **1**, No. 3136

*Necessity of Orthopedic Training: Its Relation to Prevention and Cure of Deformities. R. Jones.—p. 181.
*Use of Vitex Peduncularis in Malarial Fever and in Blackwater Fever. J. C. S. Vaughan.—p. 186.
Dilatation of Heart. W. Samways.—p. 188.
Study of Pneumococcus and Streptococcus Groups in Their Relation to Influenza. W. R. Logan.—p. 189.
Fracture of First Rib. E. T. C. Milligan and R. E. Ford.—p. 191.
Case of Myoclonic Lethargic Encephalitis Simulating Hydrophobia. S. E. Denyer and D. E. Morley.—p. 191.
Cardiac Massage in Resuscitation. N. M. Dott.—p. 192.
Case of Delayed Arsenical Poisoning. G. St. George.—p. 192.
Tumor of Neck. J. W. Thompson.—p. 192.

Better Training in Orthopedics.—Jones emphasizes: the necessity of paying more attention to the education of students in orthopedic principles if they are to be efficiently equipped in after-life. The prevention of surgical tragedies is largely dependent on the general practitioner, and his usefulness is largely dependent on his academic training. Visit any outpatient department to be satisfied as to the prevalence of the uncured cripple—often the untreated cripple. They are seen in every corner of the earth. If we inquire into the causes of these failures, we find that many of them were not seen in the early stages; many were refused hospital accommodation; other admitted into wards had to be evacuated early because of the pressure on beds; others suffered because there had been lack of continuity of treatment; most of them had not been supervised by surgeons sufficiently interested in that type of work. It is evident, if we are to prevent deformity, we must teach the fundamental principles in such a way that the teaching will bear fruit in remote places. We must reach the practitioner because we have to trust to him for an early diagnosis, and he should at least know the possibilities of modern treatment. The most effective way to accomplish this is through the mind of the student.

Use of Vitex Peduncularis in Malaria.—Accepting the example of the natives, Vaughan treated cases of blackwater fever with infusions of the plant known botanically as the *Vitex peduncularis* Wall (variety roxburghiana). It is used in various way, chiefly as an infusion of the leaves or of the root bark or young stem bark, in fever of malarial type, and especially in blackwater fever. Two ounces of the leaf used fresh, or dried in the shade, is dropped into 40 ounces of boiling water, and is boiled in it for from five to ten minutes, and then allowed to soak in the water in which it has been boiled, for an hour at least. The resulting infusion, amounting to about 40 ounces, is poured off the soaking leaf and given as required in doses of from 8 to 10 ounces, distributed over twenty-four hours, or given over the day only, the patient

resting all night undisturbed. The results, as a whole, show that, whereas there are cases that will quite readily yield to a 1 in 40 infusion, there are others that require a very much larger dosage. The actual experience with the use of both the infusion and the concentrated infusion has been that, whereas as proportion of cases have quite readily yielded to a dosage based on the infusion of 40 ounces of infusion from 1 ounce of leaf given over twenty-four hours of administration, and have yielded in some cases in twenty-four hours and in others in the course of seventy-two hours, there have been other cases which have not yielded even in seventy-two hours, but which have yielded at once when the dose was doubled or considerably increased by either giving a larger actual dose of the 1 to 40 ounces infusion, or by using a very much stronger infusion, even up to one of 4 ounces of leaf to the 40 ounce infusion, and there are others which have been even more obstinate. The results, however, have been uniformly encouraging. The drug seems to have no toxicity at all in the dosages employed. In almost all instances, Vaughan identified the parasite of malaria before commencing treatment.

Indian Medical Gazette, Calcutta

January, 1921, **56**, No. 1

Malaria. S. D. Greval.—p. 1.
Hemorrhagic Type of Malaria. B. B. Hajra.—p. 2.
Novarsenobillon. R. Bose.—p. 4.
*Complete Extirpation of Pancreas with Absence of Glycosuria. G. Chand.—p. 6.
Relapsing Fever Epidemic in Seoni District (Central Provinces), February to May, 1920. S. C. Roy.—p. 7.
*Hemolytic Test in Kala-Azar. C. Ray.—p. 9.
*Permanganate Pills in Cholera. A. R. Mojumdar.—p. 10.
*A Developmental Defect of Unknown Origin. A. J. Noronha.—p. 10.
*Cachar Sore and Its Treatment. J. M. Sen Gupta.—p. 13.
Double-Headed Monster. S. Kahar.—p. 15.
Case of Full Term Pregnancy. S. N. Misra.—p. 15.
Dermoid Cyst of Parietal Bone. A. Bayley de Castro.—p. 16.
Male Infant Born with Two Lower Central Incisor Teeth. D. J. Asana.—p. 16.
Two Vesical Calculi of Peculiar Shape. V. V. Chabukswar.—p. 17.
Interesting Case of "Rabies." A. Paul.—p. 17.
*Case of Ovarian Cyst of Unique Dimensions. T. W. Harley.—p. 18.

Extirpation of Pancreas.—Chand's patient was aged 2 years. A very large cyst of the pancreas necessitated the removal of this organ in July 1919. The urine was examined before and after the operation, but no trace of sugar was detected. It is still free from sugar, even when the chief part of the boy's diet is carbohydrates.

Hemolytic Test for Kala.—Ray describes a test for kala-azar. The blood is taken in the same way as for the estimation of hemoglobin by Gower's hemoglobinometer, and mixed with distilled water. There is no hard and fast rule about the relative proportion of blood and water—2 drops of blood in 20 drops of distilled water seems to be quite satisfactory. Instead of being a clear, transparent solution, the blood kala-azar will show itself by its turbidity. On keeping the solution for some time, a white flocculent precipitate will appear all through the fluid, which on further keeping forms a marked deposit. The test is so simple that it can be done by the busy physician himself at the bedside. A test tube of small caliber, a capillary pipet and a little distilled water is all that is required. The test is said to be quite reliable.

Permanganate Pills in Cholera.—Mojumdar make the pills in the usual way with kaolin and petrolatum and instead of giving them a separate coating, he keeps them in a bottle containing kaolin in fine powder. The powder immediately forms a coating and, when subsequently dried, forms a thin crust. The pills are kept in the powder and used therefrom when necessary.

Developmental Defect.—In Noronha's case while the face is bigger on the right side, the trunk and limbs are larger on the left. The foot is abnormally large. There was nothing worthy of note that might be considered abnormal in connection with the motor system. There was a diminution of the tone of all the muscles of the body. The boy was slow in answering questions and also slow in understanding instructions. The sella turcica was normal in size. The bones of the right leg were distinctly larger than the left, but the difference in size was not so apparent in the case of the upper extremity. The heart was feeble, otherwise normal in position and size. The blood pressure was low, 98 systolic and 65 diastolic. The Wassermann test was negative. Benign tertian parasites were found in the blood. Beyond a slight transient bronchitis, there was nothing abnormal, except in the size and shape of the chest.

Treatment of Cachar Sore.—Cachar sore (Assam sore—locally known as Shantira) is a kind of unyielding ulcer. It appears more or less in epidemic form and affects cultivators and tea garden coolies specially. In a majority of cases the ulcer affects the leg, probably as a result of contamination by mud, the germ gaining entrance through an abraded skin or a slight wound. In a few cases, however, the upper lip with the mucous membrane of the nose has been found affected. Microscopic examination of the discharge reveals a type of bacillus which is present in enormous numbers. The true nature of this bacillus could not be determined. No other micro-organism could be detected. It starts as a small pimple, which in a day or two is surrounded by an areola. This increases in size rapidly and in a few days breaks out in an ulcer, with profuse discharge and offensive smell, associated with acute pain. Extension is very rapid. It resists all the usual methods of treatment of chronic ulcers, particularly when it is somewhat advanced. In the early condition some good may be achieved by touching the margin and surface of the ulcer with silver nitrate or strong phenol, followed by antiseptic dressings with mercury lotion, picric acid lotion, etc. Intravenous injections of from 2 to 4 c.c. 1 per cent. tartar emetic solution was extremely satisfactory. Four cases are cited.

Unusually Large Ovarian Cyst.—The weight of Harley's patient immediately before the operation was 246 pounds and immediately after the operation, 82 pounds, so that the weight of the tumor and its contents was 164 pounds. The patient died the day after operation of shock.

International Journal of Public Health, Geneva

January-February, 1921, **2**, No. 1

Influence of Postwar Conditions on Feeding of Children. P. F. Valagussa, Rome, Italy.—p. 1.
Public Health Before and After War. H. Westergaard, Copenhagen, Denmark.—p. 19.
Present and Future Social Hygiene in America. C. W. Eliot.—p. 24.
Organization of Campaign Against Syphilis in France. E. Leredde, Paris.—p. 28.
Early Treatment and Protective Inoculation in Tuberculosis. K. Shiga, Tokyo, Japan.—p. 34.
Development and Present Scope of Industrial Nursing in United States. F. S. Wright.—p. 43.

Lancet London

Feb. 5, 1921, **1**, No. 5084

Future of Poor-Law Infirmaries. A. G. Stewart.—p. 259.
*Cause and Relief of Pain in Gastric Ulcer. E. P. Poulton.—p. 263.
Induction of Abortion. J. Phillips.—p. 266.
*Incision for Appendicectomy. N. C. Lake.—p. 268.
*Operative Treatment of Prolapse (Procidentia) of Rectum in Adults. J. P. Lockhart-Mummery.—p. 270.
Disseminated Sclerosis Treated with Intravenous Arsenic. J. R. Perdrau and G. F. Stebbing.—p. 271.
Administration of Bile Salts in Infantile Marasmus. E. F. Kerby.—p. 272.

Relief of Gastric Ulcer Pain.—An important element in the pain of gastric ulcer Poulton says is due to distention of the stomach, and can be relieved by means of gastric and gastro-duodenal tubes. Some evidence is brought forward that chronic gastric ulcer is due to intragastric pressure.

Incision for Appendectomy.—The inner rectus incision, with the rectus retracted out so that the whole of the abdomen can easily be explored, while at the same time the accessibility of the right iliac fossa is not seriously affected is favored by Lake. This incision is indicated in all cases except those in which the localization of an abscess can be guaranteed.

Operation for Prolapse of Rectum.—The principle of the operation made by Mummery is to restore the bowel into its normal place in the hollow of the sacrum and hold it there by firm adhesions. In order to obtain these dense adhesions he makes use of healing by granulation, and with this object in view the space posterior and lateral to the prolapsing portion of the rectum is packed with gauze and only allowed to fill up slowly so as to get the densest possible adhesions between the rectum and the sacrum.

Medical Journal of Australia, Sydney

Jan. 1, 1921, **1**, No. 1

Acute Perforation of Gastric and Duodenal Ulcer; Report of Twenty-Five Cases. J. L. McKelvey.—p. 3.

Jan. 8, 1921, **1**, No. 2

Cases of Acute Ruptured Ulcers of Stomach and Duodenum. H. Bullock.—p. 21.
Haemorrhagic Conditions in New-Born. I. E. Ashby.—p. 23.
Retrobulbar Neuritis and Dental Sepsis. E. T. Smith.—p. 25.
Anaphylaxis After Injecting a Specific Protein. B. C. Cohen.—p. 26.

Jan. 15, 1921, **1**, No. 3

Maternal Mortality in Childbirth. J. S. Purdy.—p. 39.

Jan. 22, 1921, **1**, No. 4

Accessory Food Factors and Their Influence on Nutrition. E. Dalyell.—p. 61.
Primary Round Celled Sarcoma of Stomach. J. N. Morris.—p. 66.

Quarterly Journal of Medicine, London

January, 1921, **14**, No. 54

*Estimation of Sugar Tolerance. H. Maclean and O. L. V. de Wesselow.—p. 103.
*Reaction of Spinal Fluid During Cerebrospinal Fever. C. Shearer and T. R. Parsons.—p. 120.
*Fatal Bronchiolitis and Bronchopneumonia Caused by B. Influenzae (Pfeiffer) During an Interpandemic Period. A. Malloch and L. J. Rhea.—p. 125.
*Spirochaetosis Icterohemorrhagica. J. A. Ryle.—p. 139.
Metabolism in Infantile Atrophy, with Special Reference to Respiratory Exchange. G. B. Fleming.—p. 171.
*Certain Effects of Peptone Injections in Septicemia. A. E. Gow.—p. 187.

Estimation of Sugar Tolerance.—The determinations of the sugar tolerance were made by McLean's method. In well marked cases of diabetes the results of the test, though of interest from a scientific point of view, were not important for purposes of diagnosis, though the authors emphasize the necessity of estimation of the blood sugar in excluding renal diabetes. In cases, however, in which occasional glycosuria is present, the significance of which remains in doubt, very valuable information may be obtained. The method makes it possible to gain an insight into the patient's capacity for dealing with carbohydrate more certainly, and more rapidly, than does a dietetic test, in which the appearance or absence of glycosuria is alone considered. Such glycosuria is in itself no evidence of hyperglycemia, unless the renal threshold is known, and in some cases a definite delay in storage can be detected even though the blood sugar content does not rise above the renal threshold for glycuresis throughout the test. The sugar content of the blood is, in other words, better estimated directly, than indirectly through a study of the renal excretion. In detecting minor deviations from the normal, which may constitute the earliest warnings of the development of diabetes, the test appears to have a very definite use. In fact, the estimation of the sugar tolerance by examination of the blood sugar at varying intervals, after the ingestion of carbohydrate, is the only means by which a satisfactory graphic representation of the actual condition of the carbohydrate storing mechanism can be obtained.

Spinal Fluid in Cerebrospinal Fever.—In cerebrospinal fever it has frequently been noted that there is often a striking difference between the clinical symptoms shown by a patient suffering from this disease and the degree of infection or number of meningococci found in the spinal fluid on lumbar puncture. Shearer and Parsons suggest the possibility that in such cases the degree of acidosis is the controlling feature. If the spinal fluid contains less than the normal amount of glucose or other substance from which the meningococcus may form acid, or if the particular strain of the organism setting up infection has not the faculty of forming the usual amount of acid, the patient's fluid will show slight change in reaction, though large numbers of meningococci may be present. The absence of marked acidosis of the spinal fluid in such cases would account for the mild clinical symptoms. It may prove that those types of meningococcus responsible for fatal cases are always strong acid forming strains.

Influenzal Bronchiolitis and Bronchopneumonia.—Nine fatal cases of bronchiolitis and bronchopneumonia, due to *B. influenzae* of Pfeiffer, which were seen at a base hospital in France in 1916-1917, are described by Malloch and Rhea. Great dyspnea, marked cyanosis, rapid pulse, irregular temperature, the expectoration of large amounts of nummular sputum, and signs of a generalized bronchiolitis (with or without signs of consolidation), were characteristic of the disease. The diagnosis rested ultimately on the finding of Pfeiffer's bacillus as the predominating micro-organism in the sputum. At necropsy this organism was grown in pure culture from the terminal bronchi, and no other organisms were seen here, though various bacteria were found in the exudate of the larger bronchi. Two cases showed acute endocarditis due to *B. influenzae*, and in one of these the blood culture was also positive for the same organism. These cases did not occur in the form of an epidemic, but apparently were sporadic; they were relatively infrequent as compared with a large number of cases of lobar and bronchopneumonia treated in the hospital; and the clinical picture was not simulated by any of these latter cases.

Spirochaetosis Icterohemorrhagica.—A clinical analysis is made by Ryle of fifty-five cases of this condition which is also known as Weil's disease.

Peptone Injections in Septicemia.—The solution used by Gow in the treatment of several cases of puerperal septicemia and of infective endocarditis was prepared as follows: One half c.c. phenol was added to 100 c.c. hot, sterile, freshly distilled water. About 3 c.c. of this solution was added to 10 gm. Witte's peptone, and the peptone made into a thick uniform paste by stirring with a glass rod; the paste was made thinner and thinner by the slow addition of the remainder of the hot fluid. About 0.5 gm. sodium carbonate was added and the whole brought to the boil, and stirred the while. The hot solution was filtered through a sterile filter paper and funnel into a sterile 100 c.c. flask, and the filtrate heated for twenty minutes on the boiling water-bath. The flask, when cool, was sealed with a sterile rubber cap. As a rule, 8 or 10 c.c. of the 10 per cent. solution of peptone have been given at the first injection, and the dose was usually progressively increased by 1 or 2 c.c. The largest single dose was 18 c.c. In the cases of puerperal septicemia the injections were repeated at intervals of not less than forty-eight hours until the termination of the disease; in one case ten injections were required, the last being of 14 c.c. In only two of the injections was the 10 per cent. solution diluted with physiologic sodium chlorid solution and in those only to 20 c.c. If signs of profound toxemia—e. g., delirium, great restlessness, and anesthesia to needle pricks—are present, it is Gow's practice to give the peptone in 250 c.c. or so of Ringer's solution. Of five cases of puerperal septicemia, two fatal ones were fulminating. The patients died with general purulent peritonitis and pericarditis shortly after admission to hospital. No clinical improvement followed the injections in the cases of subacute infective endocarditis. An immediate rise in pulse frequency, fall in blood pressure, leukopenia, and diminution in the coagulation time of the blood, all of short duration, followed each injection. These phenomena were more marked in patients with leukocytosis. A "tolerance" to peptone, as regards pulse and blood pressure, is soon established, but it is short. The polymorphonuclear leukocytes show a rapid fall followed by a slower rise. The fall in lymphocytes is proportionately less, is relatively delayed, and may be preceded by a rise. The leukopenia is followed by a transient polymorphonuclear leukocytosis. The changes are similar to those following intravenous injection of coli-typhoid vaccine, but peptone is less "stimulating" to the bone marrow.

Archives des Maladies du Cœur, etc., Paris

November, 1920, **13**, No. 11

*Tricuspid Stenosis. E. Cottin and C. Saloz.—p. 481.
*Parietal Endocarditis. R. Lutembacher.—p. 491.
*Hematoblasts in Malaria and Ankylostomiasis. M. Leger.—p. 494.

Tricuspid Stenosis.—Cottin and Saloz report with necropsy findings a case of pure tricuspid stenosis in a girl of 17. The paroxysms of cyanosis and dyspnea, the presystolic thrill, the absence of duplication of the second sound, and the presystolic liver pulse confirmed the diagnosis, as also the absence of the thrill during the paroxysms of cyanosis. The heart showed no signs of malformation.

Parietal Endocarditis.—The parietal endocarditis had developed independent of any valvular lesion and without dilatation of the heart. Necropsy revealed partial thrombosis

of the right auricle and of the opening into the inferior vena cava. The man of 60 had edema of the legs, with some ascites. No bacteria were found.

Hematoblasts in Malaria and Ankylostomiasis. — Leger describes the findings in five cases of malaria and two of ankylostomiasis in respect to the hematoblasts, comparing his findings with those of others. He remarks in conclusion that he is inclined to agree with Aynaud: "Nous ignorons tout du rôle du globulin dans l'organisme."

Bulletin de l'Académie de Médecine, Paris

Jan. 18, 1921, **85**, No. 3

*Vaccination Against Typhoid. A. Chauffard.—p. 84.
*Typhoid Fever Since the War. C. Achard.—p. 89.
*Locating a Submarine. Marage.—p. 99.
Improved Portable Sphygmomanometer. P. Menard.—p. 102.
*Liver Symptoms from Latent Appendicitis. C. Poenaru-Caplesco.—p. 105.

Vaccination Against Typhoid.—Chauffard opens a discussion on the advisability of vaccination of the civilian population, suggesting that the first vaccination should be at 15, the second at 18 and the third at 21. This individual prevention will effectually supplement the progress of hygiene in general, and typhoid will gradually be eradicated.

Typhoid Since the War.—Achard comments on the remarkable fact that only the women are having typhoid now, as all the men were vaccinated against the disease during their military service. In twenty-five cases in his service in the last fifteen months all were women except a few youths or elderly men, and one man of 28 who had been vaccinated against typhoid early in the war and recently developed a mild paratyphoid. Two other men had been fully vaccinated and they developed typhoid in a very mild form, *typhoïdette* as he calls it.

Locating Submarines.—Marage warns of the necessity for perfect hearing alike in both ears for the measures required to locate a submarine in the depths. Biologic physics has to be considered in many questions which at first seem to be only those of pure physics.

Liver Symptoms from Latent Appendicitis. — Poenaru-Caplesco remarks that notwithstanding the innumerable works on appendicitis there is still much to be learned about it. He has been impressed with the clinical picture presented by seventeen patients with apparent liver disease, rebellious to all treatment of the liver, but subsiding at once after appendicectomy. In one typical case described, the pains in the liver region, the vomiting and slight jaundice, sometimes a chill, yielded to treatment but kept returning, sometimes with high fever, and the man lost 25 kg. in weight. By exclusion, latent appendicitis was diagnosed, and there has been no liver derangement since the appendix was removed, and the man is in good health and has forgotten his liver. In the whole group there was occasional fever for one or two days, but no pain or other symptoms to attract attention to the appendix region. He calls these patients false *hépatiques*, although there may be a predisposition on the part of the liver; this seems scarcely likely however on account of the complete recovery.

Bulletin Médical, Paris

Dec. 25, 1920, **34**, No. 62

*Dermatoses in the Emotional. L. Brocq.—p. 1159.
*Diffuse Acute Sclerodermia in Children. W. Dubreuilh.—p. 1163.
*Injury from Alkaline Treatment of the Scalp. R. Sabouraud.—p. 1165.
*Dermatitis of the Cheek. P. Ravaut and Rabeau.—p. 1167.
*Urticaria. C. Flandin.—p. 1170.

Dermatoses in the Emotional.—Brocq refers to congestion in the skin inducing a dermatosis in the emotional under the influence of some toxin. He emphasizes the importance of the emotional instability in such cases, and also of disturbances in menstruation. In a typical case described in an unmarried woman of 30, bad news induced an attack of urticaria. In one case after an unexpected piece of good news, an eruption developed which progressed to an exfoliating erythrodermia. The attacks sometimes develop after eating certain food or taking certain drugs, but the etiologic dominants are unmistakably the extreme emotionalism and menstrual disturbances, upsetting the balance in the sympathetic system. The congestion and the rapidity with which the skin lesions develop are special features of this group of cases. The congestion may affect the skin or any organ. These cases of *alternances morbides* often prove puzzling. The eruption may last only a few hours or days, a "straw-fire eruption." It may subside completely, but it sometimes progresses to vesicle production or exfoliation. When the localization of the trouble is in the stomach, intestine, appendix, or elsewhere, it is liable to be mistaken for an operative lesion. How many operations, he says, might have been avoided if this emotional congestion had been recognized in time, and how many patients of this kind have been exasperated when the conscientious physician tells them that there is nothing really the matter with them. The trouble is usually the other way, however; the physician assumes pulmonary tuberculosis when the apex is merely the seat of a transient congestion, alternating with skin manifestations. This class of patients sometimes present nervous disturbances which resemble those of serious pathologic conditions but which are only transient storms which harmlessly subside when the congestion wave sweeps on somewhere else in the organism, especially to the skin. In treatment he warns to ascertain any idiosyncrasy on the part of the patient to any drug or food. This requires long study of the case and that the patient should not change his physician. Many mistakes have been made by physicians, surgeons and specialists from the patients neglecting this rule.

In treatment the main thing is peace of mind, with physical repose in a suitable environment, free from annoyances. The diet has to be tentatively regulated but by no means restricted to a debilitating dietary. It may sometimes be useful to prescribe a starvation diet for a few days. He has had cases rebellious to all treatment modified by two or three days of restriction to water, combined with laxatives. An abundant diet has proved successful for vegetarians. This starvation diet had been responsible for much of the nervous impressionability. The physician has need of all his skill in treating this class of patients and modifying his plan according to circumstances. In the extreme case described, great benefit was derived from ovarian and suprarenal extracts. The skin has become the point of lesser resistance and it has to be strengthened and irritation kept away, the congestions diverted elsewhere. He has obtained good results with very small fractioned doses of tartrate of antimony and potassium, 2 mg. of the drug in 5 gm. of water, beginning with 2 teaspoonfuls a day and gradually increasing to 10. Quinin has been useful in some cases, in fractioned doses. In local treatment, talcum powder is usually the best treatment. For this he has the patient lie on a sheet on which 2 or 3 kg. of the powder have been spread and more is dusted on the skin, and the sheet is then wrapped around the body. This is the simplest dressing, and succeeds best in the majority of cases. If a softening application is desired he tries different cold creams or pastes, applying one on one side of the body and another elsewhere, to compare the benefit therefrom.

Diffuse Acute Sclerodermia in Children.—Dubreuilh has compiled eighteen cases, including five boys and thirteen girls, with this sclerodermia. It is usually preceded by a severe upset in the general health, fright or accident. The treatments employed have been very variable but do not seem to have displayed much influence. Thyroid treatment has been given in most of the more recent cases but has not seemed to modify conditions materially. The disease subsides equally completely with or without it. All the cases on record recovered in time, from four months to a year with an average of over seven months' duration.

Alkali and Falling of the Hair.—Sabouraud declares that the more he studies disease of the scalp the more he is convinced that dry skins keep their hair while the hairs are inclined to drop out on oily skins. Analysis of the cases shows, however, that the oily scalps are washed more frequently. Alkaline treatment has given good results in seborrhea, but he shows that the alkali injures the hair, renders it brittle, and entails trichorrhexis nodosa, which is not a disease of the hair but is the result of injury from harsh alkalis.

Recurring Dermatitis of the Cheek.—Ravaut and Rabeau report the case of a girl of 15 who had presented a chronic erysipelatous dermatitis of the cheek with repeated exacerbations every two months for two years, and then every month

for two years. All treatments had failed until they applied sodium hyposulphite by intravenous injection and internally. This course of eighteen injections in ten months seemed to desensitize, and the tendency was overcome, and there has been no recurrence during the last eight months. The drug was injected in a 20 per cent. solution; 10 c.c. was the usual dose, but sometimes only half this. They have been using this treatment in different cases for two years and have never had any accidents; only in four or five cases was there a slight skin reaction suggesting that of sulphur. They have been recommending it recently to combat the by-effects of arsphenamin treatment, and have found it effectual in certain dermatoses especially furunculosis, certain eczemas, urticaria and strophulus.

Urticaria.—Flandin discusses the numerous causes that may induce urticaria. There seems to be a fundamental difference between the urticaria induced by albuminoids and that induced by crystalloids. The test of passive anaphylaxis is positive only with the albuminoids. No one has ever succeeded in transmitting drug sensitization to the guinea-pig, and the *crise hémoclasique* was never found in one person sensitized to antipyrin, although it proved possible to desensitize him by small doses. Digestive urticaria generally returns each time the harmful food is eaten after the primary attack. But there is a certain class of cases in which alimentary sensitization can be excluded. In many in this class eosinophilia is pronounced, especially during the attack of urticaria. This suggests the necessity for examining for helminths. Helminthiasis as a cause of urticaria is more liable to be overlooked as the urticaria may persist until the very last of the parasites have been destroyed. Urticaria may be the first sign of an unsuspected hydatid cyst. After exclusion of all other causes, the urticaria may yield to what he calls desensitizing autoserotherapy. He reinjects from 0.25 to 2 c.c. of the patient's own serum, drawn from a vein and reinjected subcutaneously. He has often seen the urticaria disappear almost completely after the first injection, but usually he repeats it and thus obtains a definite cure. The progress in the treatment of urticaria has thus been along the lines of pathologic experimentation. The pathogenic interpretations are allowing the classification of clearly defined groups, the treatment of which is becoming more rational.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 24, 1920, **44**, No. 40

Embryologic Study of Process of Obliteration of Ductus Arteriosus. G. Variot and F. Cailliau.—p. 1598.
Epidemic Hiccup. P. Lafosse.—p. 1604. Id. G. Railliet.—p. 1607.
Histologic Lesions in Case of Human Rabies. L. Marchand.—p. 1610.
*Epidemic Encephalitis. Denéchau and C. Blanc.—p. 1613.
*Case of Myasthenia. Lereboullet, Izard and Mouzon.—p. 1618.
Negative Radioscopic Findings in Case of Hydrothorax from Heart Disease. A. Gendron.—p. 1624.

Epidemic Encephalitis.—Denéchau and Blanc state that the disease proved fatal in 34 per cent. of their 31 cases, and 6 have been left with mental disturbance; in 5 this is a total amentia, persisting for the six to fourteen months to date. Tremor of the Parkinson type developed at the fifth month in 2 and persisted for two months; and beginning at the thirtieth day in one, and persisting for fourteen months to date. Atrophy of muscles is pronounced in 2 patients; 2 others presented the clinical picture of a brain tumor, but large craniectomy in one disclosed nothing but congestion of the brain. There was transient relief afterward, and the symptoms changed their character, typical myoclonia succeeding to the jacksonian epilepsy. They cite six other services where a similar mistake was made. The brief intervals between the seizures, a tendency to jerking, and the absence of Babinski's sign should warn against the assumption of a brain tumor. In the discussion that followed, Netter stated that Italy has recorded 4,000 cases with 1,013 deaths.

Myasthenia with Changes in Jaws.—The myasthenia is of thirteen years' standing in the case illustrated, but by extreme care the woman is able to lead still an active life. Intense decalcification of bones, changes in the upper jaw and teeth, and amenorrhea are other features of the case. The symptoms become accentuated under fatigue but subside during rest and under treatment with epinephrin and calcium chlorid.

Journal de Médecine de Bordeaux

Dec. 25, 1920, **91**, No. 24

Enlarged Glands Above the Epitrochlea in Native Africans. L. Verdelet.—p. 659.
*Dilatation of Cecum from Incontinence of Pylorus. Dargein.—p. 660.

Dilatation of Cecum from Incontinence of the Pylorus.—Dargein concludes from five cases personally observed that when the pylorus is incontinent, the cecum is liable to become distended from swallowed air or fermentation gases. The latter develop in excess owing to the incompleteness of the digestion in the stomach from the hasty evacuation. The cecum responds to the irritation from the inadequately digested food by spasm, thus setting up a vicious circle and entailing permanent dilatation, kinks, etc. Before resorting to surgical measures, medical treatment directed to the pylorus may render them unnecessary.

Jan. 10, 1921, **92**, No. 1

*The Spirit of Observation in Medicine. R. Cruchet.—p. 7.
Ocular Symptoms of Epidemic Encephalomyelitis. C. Fromaget.—p. 17.
*Committee Report on Epidemic Encephalomyelitis. R. Cruchet.—p. 20.

The Spirit of Observation in Medicine.—Cruchet's address on observation, which he calls *la base éternelle de la médecine*, was the inaugural lecture of the pathology course.

Epidemic Encephalitis.—Cruchet states that since March, 1918, there have been in the Bordeaux region 145 cases of epidemic encephalomyelitis confirming in every respect his description of cases in 1916-1917. His communication was presented at a public meeting of the local medical society, devoted exclusively to this disease. The mortality in the 145 cases was 18.6 per cent. but the disease subsides very slowly and the stage of convalescence lasts interminably. The mental depression persists, and several of the convalescents have had to be sent to asylums for the insane. Several children who have had the disease cannot be kept in the regular school as they have become restless and almost dangerous, unable to remember what they study, and demoralizing the other children by their disorderliness. The prognosis in the myoclonic and myorrhythmic forms is grave; in 12 cases, the condition still is desperate in 4, and 7 died. The ocular symptoms, on the other hand, rarely persist. Intraspinal serotherapy has proved useful in some cases, antitetanus, antimeningococcus or diphtheria antitoxin. Cruchet endorses this treatment. Fixation abscesses have also been frequently applied. Sabrazès injected intraspinally blood serum from the father in one case, and convalescent's serum in another. The other measures mentioned are hexamethylenamin by various routes, and silver salts by the vein. No instances of direct contagion were known in the whole list. In the discussion that followed, Berger commented on the present unprecedented prevalence of spinal cord disease in the absence of syphilis or tuberculosis: severe neuralgia, quadriplegia with atrophy, or a set of symptoms suggesting lateral amyotrophic sclerosis. The combination of symptoms in 6 cases mentioned was like nothing else he had ever seen. There was malaise at the onset, but no fever at any time. Cruchet has been able to trace 28 cases of the 53 observed 1916-1917; 28.5 per cent. have died and only 14.2 per cent. seem to have completely recovered. Eight pages are devoted to the symposium and Bordeaux publications on the disease.

Paris Médical

Jan. 29, 1921, **11**, No. 5

*Deformity of Fifth Lumbar Vertebra. P. Mauclaire.—p. 81.
The Pilomotor and Emotional Reflexes. André-Thomas.—p. 83.
*Intratracheal Injections. A. Balvay.—p. 89.

Deformity of Fifth Lumbar Vertebra.—Mauclaire refers to cases in which the deformity causes severe pain. It is remarkable, he says, that the pains usually develop suddenly and not until the twentieth or thirtieth year. In a recent case the sixth vertebra was the one involved. He describes five of these cases with pains, and relates that he operated in one but without any improvement of the pain. This patient was a woman of 45, and the lumbar pain was of eighteen years' standing. In another case a professional pianist had suffered from this painful sacralization and great improvement followed resection of the top of the hypertrophied transverse process. He cites several other successful cases from the literature. The best mode of access, he thinks, is by an

incision on the median line with a transverse incision at the top. There are no important vessels in the region.

Intratracheal Injections. — Balvay gives an illustrated description of a special cannula with curved end which he introduces horizontally back to the throat, and then turns to push the tip down into the trachea. He gives roentgenograms of a rabbit injected in this way with 0.5 c.c. of mercury. The twentieth minute the fluid was still at the base but thirty-six hours later the entire lungs were scattered with the mercury, which had invaded even the apices. Only 2 or 3 c.c. of the fluid should be injected at one time, but he claims that this method is within the reach of any practitioner. The curve of the cannula must correspond exactly to the curve of the base of the tongue down to the larynx.

Presse Médicale, Paris

Jan. 22, 1921, **29**, No. 7

*Paralysis of Cervical Sympathetic. F. Terrien.—p. 61.
Study of the Obese. A. Martinet.—p. 64.
Ethylhydrocuprein in Disease of the Eye. L. Cheinisse.—p. 66.

Paralysis of Cervical Sympathetic.—Terrien says that the complete clinical picture of paralysis of the cervical sympathetic, as observed in experiments on animals, is never encountered in the clinic. At least it was never encountered in the twenty-two cases he has compiled. There was miosis in all and enophthalmos in all but two, but there was hypotony of the eyeball in only two. Other eye and pupil symptoms, vascular and trophic derangement were observed in some, as he describes in detail, as also a number of phenomena at a distance, associated disturbances. The vascular symptoms soon subside but the ocular persist indefinitely.

Research on Obesity.—Martinet tabulates the findings in regard to the blood pressure, pulse, viscosity of the blood, and the albumin and sugar content of the urine in eight women and thirty-five men, all weighing 100 kg. or more. Obesity represented by this weight is almost always the index and the companion of more or less grave pathologic conditions, of which asystole and uremia, diabetes, gout, and lithiasis are the most frequent. Only four of the total forty-three showed merely simple plethora. The blood pressure was almost invariably above normal as also the viscosity of the blood. The parallelism was most striking between the weight, arterial pressure and the pulse in three cases charted. Obesity is evidently a morbid syndrome of varied pathogenesis, and hence treatment must be individualized to correspond. The degree of obesity can be estimated by dividing the weight by the height. For example, a man weighing 100 kg. and 1.82 m. tall, gives a quotient $\frac{100}{82} = 1.20$ which is not much above normal, while with a weight of 140 kg. and height of 1.6 m. the quotient is $\frac{140}{60} = 2.33$. The ratio between the pulse and the viscosity is an index of the evolution of the nutritional and circulatory derangement. In conclusion he reiterates his warning of the necessity for individualizing—"Il n'y a pas de cent kilos, il n'y a que des cent kilos."

Jan. 26, 1921, **29**, No. 8

*Angina Pectoris and Raynaud's Disease. L. Bard.—p. 73.
*Silver Salvarsan and Luargol. Danysz.—p. 74.
*Exclusion of the Pylorus. G. Georgesco.—p. 75.

Angina Pectoris and Raynaud's Disease.—Bard calls attention to the coincidence of disturbances in circulation elsewhere, with these two pathologic conditions. He reports a case in a man of 33 in which angina pectoris, Raynaud's disease, loss of one eye from disturbance in the circulation in the retina, and intermittent claudication occurred in turn. The first symptoms were an attack of angina pectoris after a bombardment, and the man died in a similar attack two years later. The existence of these four different localizations, all on the left side, points to a nervous origin for them all, and seems to exclude local endarteritis. The attack in the fingers was brought on by cold, the attack in the toe by walking, the angina pectoris by fatigue and emotions. The fatal outcome in this case shows that even attacks with a nervous origin may prove fatal. A spasm of the artery capable of producing total anemia in a finger may well arrest the action of the heart when the spasm attacks the coronaries. He recalls Jonnesco's recent suggestion to combat angina pectoris by severing the cervical sympathetic. The latter has actually applied this in one case, as mentioned in THE JOURNAL, Nov. 27, 1920, p. 1525.

Silver Salvarsan and Luargol.—Danysz recalls that he reported on the combination of silver and arsphenamin in 1913 under the name of luargol. His experiments with it showed it equally effectual in treatment of syphilis as arsphenamin, in a third of the dose.

Exclusion of the Pylorus.—Georgesco gives an illustrated description of his method of absolutely shutting off the pylorus by cutting a vertical incision down to the mucosa and then working a spatula under the mucous membrane of the rear wall, thus lifting up the entire mucous membrane unopened. He then crushes it across and ligates it twice, dividing it with the thermocautery between the two ligatures. The vertical incision in the anterior wall is then sutured horizontally. The operation is strictly aseptic as the mucosa has not been opened. The only contraindication is cicatricial changes rendering it impossible to loosen up the mucosa on each side of the incision. He has applied this technic in three cases with complete satisfaction.

Progrès Médical, Paris

Jan. 8, 1921, **36**, No. 2

*Pulsus Alternans and Uremia. J. Chalier and N. Contamin.—p. 13.
Notes from the Clinics of the Week.—p. 14.
*Signs of the Death of the Fetus. H. Vignes.—p. 17.

Pulsus Alternans and Uremia.—Chalier and Contamin analyze ten cases of chronic nephritis with pulsus alternans or uremia, or both. There was no parallelism between them; one may occur without the other, or one may be slight and the other intense. In two of the cases there was extreme uremia but no pulsus alternans. Bimanual palpation is instructive, compressing the humeral artery with one hand, with the other hand at the radial pulse. It is thus possible to arrest the weak beats while allowing the strong beats to pass. This, they say, confirms the diagnosis of the *alternance cardiaque*.

Signs of Death of Fetus.—Vignes regards the abrupt cessation of nausea or vomiting early in pregnancy as a presumptive sign of the death of the fetus; another sign is the beginning of functional activity in the mammary glands. A third sign is that the uterus is not so large as would correspond with the age of the pregnancy, and it does not increase further in size. If it grows smaller, this seems to be absolute proof of the death of the fetus. Another sign is the uterus growing of a harder consistency, as the fluids are absorbed. In advanced pregnancy the unusual size of the abdomen may indicate hydramnios, and this always menaces the life of the fetus. A further argument is a history of the death of the fetus in a preceding pregnancy, also the subsidence of previously noted manifestations of autointoxication, such as albuminuria, high blood pressure, etc. A soft, pasty consistency of the uterus is instructive, difficult to outline by palpation. He also examines for crepitation: the bones of the fetal skull rub against each other and slide up on each other as the tissues soften during maceration. The crepitation may sometimes be detected by palpation through the abdominal wall or the vagina. Retention of the dead fetus does comparatively little harm so long as the membranes are intact. But if the ovum has been opened, the fetus putrefies rapidly.

Schweizerische medizinische Wochenschrift, Basel

Jan. 20, 1921, **51**, No. 3

*The Offspring of Persons with Inherited Syphilis. Sidler-Huguenin.—p. 49.
*Enterostomy for Paralysis of the Intestines. J. Dubs.—p. 52.
*Treatment of Incarcerated Obturator Hernia. G. Ebnöther.—p. 57.

The Offspring in Inherited Syphilis.—Sidler-Huguenin has been examining the children of 250 persons whom he knew were subject to inherited syphilis. This included 50 families, and 28 per cent. of them were childless. He mentions further that among the 250 persons with inherited syphilis, only 9 lived to be 60 years old. The male sexual organ seems to be injured more than the female by inherited syphilis, judging from the lesser number of children in the families in which the father was the parent that had inherited syphilis. He could not find any characteristic symptoms of

inherited syphilis in the 65 children of the second generation except in one case, and this was not certain. The normal roentgen-ray findings and the negative Wassermann tests testify against syphilis even in this case. Persons with inherited syphilis can thus be reassured that their children will not feel the effects of it, although there is more probability of childlessness than under normal conditions.

Enterostomy in Peritonitis.—Dubs reports that 25 per cent. were saved of the twenty-four cases he reports in which paralysis of the intestines developed after a laparotomy. The enterostomy in these cases was evidently a life-saving measure; all in this group of six recoveries were under 26. The enterostomy must be applied before the paralysis spreads to include a large area, that is, before the picture of ileus is complete. He adds that the relief of the pain and vomiting is so great that even in hopeless cases it may be advisable.

Treatment of Incarcerated Obturator Hernia.—Ebnöther declares that the prognosis for incarcerated obturator hernia need not be so grave as at present considered if treatment is applied first to the hernia from without and then by a laparotomy. He applied this in one case with success although the conditions were very unfavorable, with gangrene and with ileus for three days, in a woman of 56. The diagnosis was based on the local findings, the flexion, adduction and outward rotation of the thigh to relieve the pain in the hernia. Another sign was the neuralgia in the obturator nerve domain, that is, the inner side of the thigh from the knee to the hip joint.

Chirurgia degli Organi di Movimento, Bologna

December, 1920, **4**, No. 5-6

*Modification of Albee Technic in Pott's Disease. I. Scalone.—p. 505.
*Primary Epithelioma of a Finger. G. Razzaboni.—p. 511.
*Traumatic Aneurysms. F. Putzu.—p. 521.
*Treatment of Talipes Equinus. M. Salaghi.—p. 557.
*Fracture of the Humerus. D. de Francesco.—p. 565.
*Necrotic Gangrene of Hand from Cervical Rib. U. Pasini.—p. 602.

Bilateral Albee Implants.—The circumstances in Scalone's case prevented the application of Albee's exact technic in the man of 26. Scalone had to modify it by using an implant on each side, instead of one in the middle. The spinous processes were fractured so that they were utilized to reenforce the posterior median line of the spine, as with Hibb's technic. The advantages of this modification of Albee's procedure are that the implants can be buried deeper in the bone and in much better conditions for nourishment, as the tissues around have a more active circulation. No special instruments are required, as for the Albee technic, while the spine is rendered more solid by the double implant. These bilateral paramedian implants can be used even with large gibbus, while the Albee implant is liable to fracture under these conditions.

Epithelioma of a Finger.—In the first case reported by Razzaboni he supposed that he had eradicated the malignant disease by extensive excision of the small neoplasm on the finger. The woman returned a little over a year afterward with a metastasis in the supraclavicular glands. In a second case, the axillary and supraclavicular glands were already involved when the case was first seen. The anatomy of the deep lymphatics is illustrated, as it shows the necessity for removing the lymphatics tributary to those in the hand, and thus block the spread of the malignant disease. The incisions for this are at the base of the finger, in the inner side of the bend of the elbow, and a transverse lozenge-shaped incision at the anterior margin of the axilla, with an extension from the center of the anterior axilla to the neck.

Traumatic Aneurysms.—Putzu found both artery and vein involved in 40 per cent. of his twenty operative cases of aneurysm from war wounds. One man had suppuration and a tardy fatal hemorrhage, while gangrene in two compelled amputation, but the others healed by primary intention with good functioning. Review of the literature shows the rarity of a spontaneous cure of a traumatic aneurysm, and scarcely an instance is known of the spontaneous cure of an arteriovenous aneurysm.

Talipes Equinus.—Salaghi urges the advantages of transverse subcutaneous section of the Achilles tendon in treatment of talipes equinus. In one case described, the deformity was of thirty-eight years' standing, but the correction was complete and permanent. In connection with this operation he deplores the tendency to neglect the simple for complicated measures. He cuts the tendon and its posterior sheath through a 1.5 cm. incision, leaving the anterior sheath intact. Nothing further is needed except the plaster cast to maintain the correction.

Rotation in Fracture of the Humerus.—De Francesco describes the action of the muscles as aiding in moving the fragments of the bone, and the means to correct the tendency to rotation and other abnormal positions. Thirty-eight illustrations accompany the article.

Cervical Ribs.—An unsuspected cervical rib was finally discovered as the cause of the gangrene of the right hand in the man of 69. This is the third case of cervical ribs Pasini has encountered quite recently, and he warns that the small size of the supernumerary rib and its unusual situation may render even radioscopy findings negative or misleading.

Policlinico, Rome

Jan. 17, 1921, **28**, No. 3

*Anesthesia for Operations in Mouth. A. Vetri.—p. 77.
*Poisoning from Potassium Chlorate. P. F. Zuccola.—p. 82.
Hydrocyanic Acid in Deratization. O. Golini.—p. 88.

General Anesthesia for Operation on the Mouth.—Vetri refers to operations on children, extolling the advantages of introducing the anesthetic, after the first stage with the mask, through a catheter in the mouth introduced only to the pharynx. It does not interfere with operations on the mouth.

Potassium Chlorate Poisoning.—In Zuccola's case 6 gm. of potassium chlorate had been taken with suicidal intent, and a destructive action on the blood followed, with profuse hemorrhages from the digestive tract. Under transfusion of blood, conditions materially improved each time, but acute insufficiency of the kidneys developed after the fourth transfusion in the course of a week, and it proved fatal.

Riforma Medica, Naples

Jan. 1, 1921, **37**, No. 1

*Protein Therapy in Infectious Diseases. Durand.—p. 2.
*Mycosis of the Lung. F. Galdi.—p. 3.
Calculus in Urethra with Splinter in Bladder. G. Nicolich.—p. 8.
*Paroxysmal Vertigo. G. Gradenigo.—p. 8.
*Etiology of Epidemic Encephalitis. F. Micheli.—p. 9.
Operative Treatment of Acute Gastric or Duodenal Hemorrhage. E. Aievoli.—p. 12.

Protein Therapy in Infectious Diseases.—Durand gives the blood findings in two cases of typhoid treated by parenteral injection of milk. His experience has been much larger, but these are selected as typical specimens. Albuminuria was constant after the injections, and the leukocytes increased in numbers, especially the neutrophils. His impression is that the protein therapy seems to stimulate the generic defensive forces, mobilizing the specific antibodies.

Mycosis of the Lung.—In Galdi's case, the girl of 6 was well nourished, and tuberculosis could be excluded, but the left lung presented signs of large cavities, and *Aspergillus fumigatus* was found alone.

Vertigo of Central Origin.—The man of 62 had met with trauma of the head, and intense vertigo developed that night, evidently of vestibular origin. The impulse to fall was always toward the right. The vertigo was so extreme that he could not stand up and there was some paresis of the right arm. The attacks of vertigo returned at irregular intervals. Gradenigo ascribes this clinical picture to some small hemorrhage affecting the nucleus of the facial, vestibular and hypoglossal nerves. Notwithstanding the normal findings in the ear and nose, he had been given treatment by specialists on the assumption of otitis. The man is unable to stand on one foot, but there is no nystagmus, and whirling does not induce vertigo.

Etiology of Epidemic Encephalitis.—Micheli concludes from the reports on the subject and his own experience that this disease is a morbid entity, due to the localization in the cerebrospinal axis, by way of the nose or throat, of a specific virus somewhat like that of poliomyelitis. Like this, it is filtrable and, in special conditions of virulence and environment, may be visible. Experiments in his own service have

confirmed that the virus in certain circumstances can be cultivated, depending upon the virulence, while in another environment this may not be possible.

Rivista Critica de Clinica Medica, Florence

Dec. 15, 1920, **21**, No. 35

*Cholesterinemia. III. P. Sisto.—p. 409.

Cholesterinemia.—Sisto tabulates the cholesterinemia findings in twenty-seven cases of disease of the liver or bile passages and seven of diabetes. This brings to 106 the number of cases in which the cholesterin content of the blood has been determined in the course of his research. His figures confirm the high cholesterinemia in diabetics; it was up to 5.9 per thousand in one case, but there did not seem to be any connection between this and the severity of the symptoms. In the cases of cholelithiasis or cirrhosis of the liver, the range was from 0.93 to 6.10 per thousand, but no connection with jaundice was evident, and normal findings were sometimes encountered with cirrhosis, but as a rule the cholesterinemia was highest in the more advanced cases.

Archivos Latino-Amer. de Pediatría, Buenos Aires

November-December, 1920, **14**, No. 6

Child Welfare Work in S. Paulo. C. Ferreira.—p. 481. Conc'n.
*Typhoid in Infants. Maria Teresa Vallino.—p. 491.
Infantile Mortality in Argentina. E. R. Coni.—p. 496.
*Epidemic Encephalitis. L. Morquio.—p. 500.
Radioscopy of Case of Megacolon. V. Escardó y Anaya.—p. 512.
*Abortive Measles. R. Berro.—p. 516.
*Anomalous Measles. J. Bonaba.—p. 519.
*Cystic Lymphangioma of the Shoulder. J. M. Jorge.—p. 526.

Typhoid in Infants.—In the first of Vallino's two cases the symptoms were those of meningeal disturbance for five weeks, and although the lumbar puncture fluid was clear, antimeningococcus serum was injected. Finally the spleen became enlarged and the skin showed spots suggesting typhoid, but the agglutination test was negative. The subsidence of the fever confirmed the suspicion of typhoid, and the agglutination test at last became positive and the child of 18 months recovered. In another child 2 years old the irregular fever was accompanied by enlargement of liver and spleen, and the disease continued for five weeks. By exclusion, typhoid was suspected, confirmed by agglutination. Vallino knows of only two other cases of typhoid in such young infants that have been published in Argentina.

Epidemic Encephalitis.—Morquio describes some typical cases with chorea, and queries whether Sydenham's chorea may not have to be regarded as a part of the epidemic encephalitis picture. Is it a disease of sporadic occurrence, always the same, or are there different entities influenced by special etiologic conditions? We must not forget, he adds, that infantile paralysis has had to yield to the pressure of facts which have demonstrated the existence of a specific virus capable of originating epidemic forms which we know today as epidemic poliomyelitis.

Abortive Measles.—Berro describes three cases in which unsuspected abortive measles without eruption gave rise to a typical case in a contact. In another case an ordinary infectious sore throat seemed to be the only manifestation of measles, and in a third case two of the three children in the family developed measles while the third had only the infectious sore throat which all had presented after an accidental exposure to cold.

Unusually Long Incubation of Measles.—Bonaba remarks on the perplexity of the physician when the symptoms persist for ten or fourteen days without any signs of the eruption, suggesting typhoid or other disease rather than measles. He describes three such cases, and emphasizes that during an epidemic of measles the disease should be suspected in all catarrhal conditions in children even if they keep up for two weeks without the eruption, and the children should be isolated to avert contagion of others.

Cystic Lymphangioma of the Shoulder.—The large protuberance back of the shoulder in the 9 days infant seemed to be unmistakable cystic lymphangioma, but its removal seemed difficult on account of the possible extension of the cyst in the depths. Consequently Jorge punctured repeatedly and the cyst gradually declined in size, and he commends this treatment when radical removal is out of the question. It proved equally successful in another case, a large cyst in the sacral region, a practical cure resulting.

Crónica Médica, Lima

September, 1920, **37**, No. 687

Neohippocratism. H. F. Delgado.—p. 293.
*Vagotonia and Sympathcticotonia in the Clinic. A. Mora Quimper.—p. 300.
The Ambard Formula. E. P. Manchego.—p. 304.
Laryngoscopic Signs of Aortic Aneurysm. J. Denegri.—p. 312.
Endless Dilatation for Stenosis of the Esophagus. J. J. Mostajo.—p. 313.
*Influence of Thyroidectomy on Formation of Immune Antibodies in the Dog. A. Garibaldi.—p. 315.
Congenital Hematocele of Superior Longitudinal Sinus. J. Goyanes.—p. 317.

Influence of Vagotonia in the Clinic.—Mora gives a summary of the recent literature on the autonomic nervous system. He remarks that the conception of vagotonia and sympatheticotonia has been accepted in theory but not in practice. It is very rare to encounter cases with complete antagonism. The clinic has not yet decided as to their clinical importance. The greater part of the symptoms from derangement of the autonomic nervous system proceed from the digestive apparatus and structures derived therefrom. The opinions are conflicting as to the share of vagotonia in gastric ulcer. Some patients reacted alike to atropin and epinephrin. Mora himself has encountered pronounced vagotonia in cases of habitual constipation. This has been confirmed by others, and atropin has been found useful in treatment of habitual constipation on this basis. The conception of vagotonia has been fruitful in visceral neurology. The complete syndrome is rare, but monosymptomatic forms are often encountered, and the balance between the vagus and sympathetic is often upset by some toxic or infectious process irritating the fibers of one or the other.

Influence of Thyroid-Parathyroidectomy.—Garibaldi's experiments on dogs seem to indicate that these glands play an important part in the phenomena of renovation of the blood and in the pathogenesis of certain hemolytic syndromes.

Gaceta Médica de Caracas, Venezuela

Oct. 15, 1920, **27**, No. 19

Unusual Presentation in Obstetric Case. J. Arráiz.—p. 243; Comment. D. Lobo and J. de D. Villegas Ruiz.—p. 245.
Progressive Muscular Dystrophy. E. P. de Bellard.—p. 246.

Semana Médica, Buenos Aires

Aug. 26, 1920, **27**, No. 35

*Syphilitic Disease of the Lung. P. I. Elizalde.—p. 263.
Test for Orthoforms. J. A. Sánchez.—p. 273.
Case of Epidemic Encephalitis. M. Critto.—p. 276. Id. Abella.—p. 283.
*Opalescent Effusions. A. Casaubon.—p. 277.
Two Cases of Ovary Grafting. De Rouville and Cohen.—p. 290.
The Biologic Theory of Brownian Movements. F. Ocaranza.—p. 290.

Syphilis of the Lung.—Elizalde discusses the pathologic anatomy and pathogenesis of syphilitic disease of the lung.

Opalescent Effusions.—Casaubon reviews the history of milky effusions and the various types with and without fat, describing two typical cases. In one the opalescent effusion was evidently due to fatty degeneration of the polymorphonuclears.

Archiv für klinische Chirurgie, Berlin

Oct. 22, 1920, **114**, No. 3

*Regeneration of Tendons. A. Salomon.—p. 523.
*Gastric and Duodenal Ulcers. A. Eiselsberg.—p. 539.
*Sarcoma in Bones in the Extremities. A. Ecker.—p. 545.
*Transverse Resection of Stomach. Kleinschmidt.—p. 573.
Physical Principles for Draining Douglas Pouch. K. Propping.—p. 580.
*Reconstruction of Esophagus Without Tube. Kirschner.—p. 606.
*Experimental Pseudarthrosis. B. Martin.—p. 664.
*War Wounds of Lungs. W. Jehn.—p. 723.
*Transmission of Human Cancer to Mice. F. Keysser.—p. 730.
Vaccine Prophylaxis of Furuncles in Diabetics. G. Wolfsohn.—p. 737.
Deep Roentgen-Ray Treatment of Sarcomas. Colmers.—p. 749.
Cinematized Prostheses. R. Bestelmeyer.—p. 759.
Traumatic Epilepsy After War Wounds. Guleke.—p. 764.
*Low Rectal Temperature in the Amputated. A. Lublin.—p. 771.

Treatment of Gaps in Tendons.—Salomon's extensive research with fat, muscle and nerve implants confirmed the principle that a tendon will regenerate to bridge a gap when conditions are provided that favor instead of opposing the regeneration. He experimented with the Achilles tendon, and

states that it seems to be immaterial whether fat, tendon or muscle tissue or silk is used for the implant. The main thing is to keep the tendon stretched as in normal conditions. This gives it the chance for spontaneous regeneration.

Gastric and Duodenal Ulcer.—Eiselsberg comments on the present trend away from gastro-enterostomy to more radical treatment of gastric and duodenal ulcer. His experience has converted him to the view that the Billroth II method is the preferable one for the present. In his series of 99 transverse resections of the stomach, with 2 deaths, the immediate results were better than with any other technic, but in 64 cases before 1918, there was recurrence of ulceration in 9, and a new operation was required in 4 of this group. The mortality in 98 Billroth II resections was 6 per cent.; many of these patients were in extremely advanced debility. Recurrences have been observed with this technic, but mostly in the form of peptic ulcer in the jejunum. If time proves that recurrences are common with this method, we may have to return to gastro-enterostomy, or perhaps gastrojejunostomy. The latter is certainly the best treatment with inoperable cancer at the cardia. After numerous trials of all modes of nerve blocking, etc., he has returned to local anesthesia of the abdominal wall, after giving morphin and atropin, and concludes the operation under ether. He has recently been applying the Billroth I with fine results.

Sarcoma of Bones in Limbs.—Escher has a record of seventy-one cases of this kind which he summarizes. A sarcoma on a finger or toe brings the patient early to the physician, so that it can be excised in its incipiency. With giant-cell sarcoma on a long bone, resection may be tried, but all other sarcomas require more radical measures, with exarticulation of the shoulder or partial resection of the pelvis, when the sarcoma is high up on the bone.

Transverse Resection of Stomach for Hard Ulcer.—Kleinschmidt reports on 360 operative cases, including 76 transverse resections with 12 deaths. Of 33 reexamined after an interval of two years or more, all were in good health with exception of one patient with symptoms suggesting "contracted stomach."

Successful, Simplified Antethoracic Esophagoplastics.—Dirschner remarks that to date only ten cases have been published of successful reconstruction of the esophagus by a subcutaneous antethoracic supplementary tube. He describes the various attempts in this line, and then calls attention to the possibility of connecting the stomach directly with the esophagus in the neck, thus doing away with the necessity for an interposed tube. His research on the cadaver demonstrated the feasibility of loosening up the stomach and drawing it up to the neck, outside of the chest, after cutting it loose from the esophagus. The stomach thus drawn out into sausage shape was easily sutured to the stump of the esophagus, and the skin sutured over the whole. He has operated in two cases by this technic, with complete success. In one case the woman of 34 is in the best of health to date. The other patient succumbed to postoperative pneumonia and infection of the wound, two weeks after the operation. The cases are described in detail and the various steps of the intervention are illustrated. The woman was fed through a tube into the stomach just below the junction with the esophagus, above the clavicle, until healing was complete. In two other cases the same operation was done for cancer, but neither patient survived for more than a few hours. Aspiration of the wound secretions proved its usefulness in one of these cases. Unexpected metastasis in one case and a technical blunder in the other explained these fatalities.

Experimental Pseudarthrosis.—Martin's extensive experience has confirmed the importance of injury of the periosteum and bone marrow in production of pseudarthrosis.

Projectiles in the Lungs.—Jehn says that of forty-five men with projectiles in the lungs, forty-two were completely cured by operative measures. The indications were recurring hemorrhages in some and abscesses in the others.

Transmission of Human Cancer to Mice.—Keysser reports what he says is the first unequivocal instance of the transmission of human malignant tumors to mice. He says that he has further demonstrated the conditions necessary to allow this to occur, namely, by maximal irritation and sensitization of the mouse tissues.

Rectal Temperature After Amputation of Thigh.—Lublin was surprised to find that the temperature was always the same or considerably higher in the axilla than in the rectum in the 122 men examined who had been amputated in the thigh.

Deutsche medizinische Wochenschrift, Berlin

Nov. 4, 1920, **46**, No. 45

Grawitz' Theory of Slumber Cells. F. Marchand.—p. 1237.
Determination of Hydrogen-Ion Concentration. L. Michaelis.—p. 1238.
*Heart Findings in Endocrine Pathology. H. Zondek.—p. 1239.
*Roentgen Treatment of Suprarenals in Diabetes. K. Dresel.—p. 1240.
*Familial Cerebral Infantile Paralysis. Kretschmer.—p. 1241.
Convalescents' Serum in Epidemic Encephalitis. E. A. Grünewald.—p. 1243.
*Volhard's Theory of Glomerulonephritis. W. Hülse.—p. 1244.
Acute Inflammatory Postscarlatinal Encephalomalacia. Bungart.—p. 1246.
Death After Administration of Mercury and Neo-Arsphenamin. R. Krüger.—p. 1247.
Esophageal Cancer Perforating into Trachea. Teschendorf.—p. 1249.
Significance of Exogenic Factors in Schizophrenia. L. Bürger.—p. 1251.
The Muscles as Mechanical Factors in Constitutional Disposition to Pulmonary Tuberculosis. G. Ichok.—p. 1252.
*Acute Hemorrhagic Pancreatitis. E. Glass.—p. 1254.
Sensitization in Roentgenotherapy. R. Lenk.—p. 1255.
Relation of Barometric Pressure to Disease. Apolant.—p. 1256.
Status Thymico-Lymphaticus and Its Relations to Other Diseases. F. Henke.—p. 1257.
Anuria. L. Casper.—p. 1259.

Heart Findings in Pathologic Conditions of the Ductless Glands.—Zondek states that in acromegalic patients, cardiac hypertrophy, especially of the left ventricle, is frequently observed; also a slight increase of blood pressure and mild disturbances of cardiac functioning. Apparently the tendency to abnormal growth associated with the hypophysis extends not infrequently to the heart. In five chondrodystrophic female dwarfs, from 1.12 to 1.15 meters tall, he found enormously large hearts (transverse diameter of 14 cm.), although subjective symptoms were absent, but the heart sounds and pulse were normal, and heart functioning was good, in the main, although blood pressure was much below normal (a maximum of 60 mm. of mercury). In three cases of atrophic myotonia with unmistakable signs of endocrine derangement, bradycardia of 60 beats to the minute, and lower, and weak heart sounds were noticeable. Heart functioning was good except for a slight tendency to dyspnea after exertion. There was dilatation of the left, and in one case especially, of the right heart, and, at the same time, superficial and sluggish heart action. In myxedema patients, aside from retarded pulse and a slight tendency to dyspnea, we find at times marked dilatation.

Reduction of Sugar in the Blood and Urine by Roentgen Irradiation of the Suprarenals in Diabetes.—The first of Dresel's three subjects was a diabetic without acetonuria, whose excretion of sugar in the urine on a diet containing 150 gm. carbohydrates was reduced to 15 gm. of glucose daily. The quantity of urine varied between 1,500 and 2,000 c.c., the percentage of sugar being therefore around 1 per cent. The lowest blood sugar value before irradiation was 0.183 per cent. June 6, the patient was given at 11 a. m. half of an erythema dose to the right suprarenal gland. The tube was applied close to the spine on a level with the head of the twelfth rib, and a field 8 cm. in diameter was irradiated. The Coolidge tube and the Veifa apparatus were used, with filters of 3 mm. of aluminum and 0.2 mm. of copper. The focal distance was 22 cm., with a 25 cm. spark gap. The intensity was 2.5 milliamperes. A skin erythema dose requires forty minutes. Immediately following the irradiation, the blood sugar rose to 0.260 per cent., but dropped in an hour to 0.215 per cent., and in two hours to 0.103 per cent., which is normal. The following day the blood sugar was still normal (0.110 per cent.). The excretion of sugar in the urine on the day of irradiation was only 7 gm. Two days after the irradiation the blood sugar was 0.139 per cent.; the sugar in the urine was 6.5 gm. The third day the patient was given the second half of the erythema dose at the same site. Immediately preceding irradiation the blood sugar was 0.137 per cent.; immediately afterward, 0.145 per cent.; two hours later, 0.107 per cent., and the next day, fasting, 0.087 per cent. The sugar in the urine had been reduced to 2 gm. To attain permanent

results, if such are possible, it will doubtless be necessary to weaken the functioning of both suprarenals, as experience shows that when only one suprarenal is treated, compensatory hypertrophy of the other is likely to occur.

Infantile Paralysis.—Kretschmer reports three cases of familial cerebral infantile paralysis in three brothers, aged 20, 16 and 15, respectively. A sister, at the present writing aged 15, is perfectly well. In all three brothers a slowly progressing disease process set in at the age of 12 in each instance, characterized by spastic paraplegia or tetraplegia, formation of talipes and pes excavatus, partial atrophy of the optic nerve, retardation of speech and more or less marked signs of imbecility. All three brothers were entirely normal physically up to the onset of the disease. The oldest brother was normal mentally; the two younger brothers did not make good progress in school. Kretschmer is inclined, with Gowers, to regard these conditions as abiotrophic. He thinks they rest on a hereditary basis, although, in these particular cases, the parents gave no evidence of neurotic tendency.

Volhard's Theory in Regard to Acute Diffuse Glomerulonephritis.—Hülse refers to Volhard's theory of angiospastic ischemia, based on the fact that in acute nephritis not only the glomeruli but also the afferent vessels are found to be more or less deficient in blood. In explanation of the manifold pathologic changes in the kidney from the first stages of the acute diffuse nephritis to the final stage of secondary contracted kidney, he assumes an uninterrupted succession of events beginning with the spastic closure of the preglomerular vessels due to disturbance of functioning. Hülse says that, while there are some objections to the theory that have not been overcome, no critic of his theory has been able to supply anything more plausible. He has been undertaking a series of injections on the cadaver to test Volhard's theory, and from his experiments he concludes that it is absolutely certain that the cause of ischemia in the first stages of acute diffuse glomerulonephritis is to be found in functional and not in organic closure of vessels. What is at first a functional closure becomes later "anatomically fixed" through coagulation of plasma and growth of endothelium. He emphasizes that his investigations so far on the Volhard theory substantiate only the cause of ischemia. Whether the anatomic changes that occur in the vessels and the glomeruli in the course of diffuse glomerulonephritis are also a result of spastic closure of the vessels, is a subject for further investigation.

Acute Hemorrhagic Pancreatitis with Necrosis of Fat Tissue.—Glass states that the diagnosis "pancreatitis" should usually be made only tentatively. Great weight, as regards differential diagnosis, should be attached to the symptom persistent pain with paroxysmal exacerbations. Rigidity of the walls of the upper abdomen and more or less persistent hepatic dulness should be looked for. He attaches great value to early operation. Slitting the capsule is in most cases not necessary, but he demands thorough drainage of the pancreas from several sides; also thorough drainage of the small pelvis from an incision in the right lower abdomen for the purpose of rapid drawing off of exudate. He reports two cases in young women with recovery.

Mittheil. a. d. Grenzgebieten d. Med. u. Chir., Jena

1920, **32**, No. 4

*Experimental Research on Tetany, II. E. Farner and R. Klinger.—p. 469. Cont'n.
*Hirschsprung's Disease. F. Goebel.—p. 498.
*Diffuse Colloid Struma. A. Hellwig.—p. 508.
*Bilirubin in Human Serum. R. Botzian.—p. 549.
*Post-Operative Intestinal Diseases. W. Goldschmidt and A. Mülleder.—p. 567.

Experimental Studies of Tetany.—Farner and Klinger extended their investigations to cats, with excision, total or partial, of the thyroid and parathyroids in forty cats of various ages. Tetany, acute or chronic, followed in the larger number of cases; in some, no symptoms were observed; in some others, the acute attack could be modified by a suitable calcium diet, and a state of tolerance to the condition established, interrupted by occasional acute onsets. The development of accessory parathyroids does not protect against lethal tetany, nor does a rudimentary occurrence condition a severe chronic state. As for the thyroid, it was established that its total removal may give rise to acute tetany; if a functionating portion is left, the removal of all four parathyroid bodies may pass without acute manifestations. The therapeutic use of lime never failed in staying acute cases of undoubted tetany, but the effects last but one or two days, hence the treatment must be continuous. The experiments lead to the conclusion: "The function of the parathyroids, owing to chemical affinity between the protoplasm of their cells and toxic bases (guanidin and methyl-guanidin, which normally occur in the blood and are eliminated through the urine), attract the latter from the blood and neutralize their effects." Calcium chlorid in laboratory experiments was found to produce an insoluble precipitate with guanidin carbonate: this explains, they say, its beneficial therapeutic effects.

Spasm of Sphincter Ani as a Cause of Hirschsprung's Disease.—Goebel calls attention to the lack of evidence afforded by the excised intestine for the cause of the dilatation and hypertrophy of the colon, and therefore considered the possibility of presence of spasms either in the muscles of the upper colon or at the anus. The first possibility is excluded by the frequent continuation of the dilatation as far as the anal ring; the second assumption is supported by analysis of a number of Hirschsprung cases described since 1906. The data show that anal spasms may occur with such severity that they may be termed analogous to those that occur in cardiac and esophageal neuroses. The reflex irritation leads to lesions of a nature analogous to those of the colon in the Hirschsprung complex; and the local spasms of the sphincter at least may be designated as a contributing cause of the colon manifestations. Treatment therefore should aim to combat the tendency to spasm.

Diffuse Colloid Struma.—Hellwig investigated that form of the Basedow struma where the changes are limited to the adenoma nodules, and which is known to offer a better operative prognosis, in that the removal of the nodules relieves the condition at one stroke. The subject is considered historically and clinically. In 516 postmortems at Freiburg in 1919 were found 135 adenomatous, thirty-eight simple parenchymatous, and twenty-one diffuse colloid strumas (subjects 16-69 years). The colloid strumas were typically macrofollicular. Large follicles normally are found principally in growing and fullgrown subjects; in such as receive food rich in protein; in acute cases of diseases with high fevers; in the lively North-Germans; in frogs in warm regions; in bats in spring; during the state of pregnancy. Small follicles normally occur in old age; with food poor in protein; in wasting diseases; in apathetic Alpine dwellers; in mountain frogs fond of a cold habitat; during hibernation. The data indicate that the diffuse colloid struma represents a thyroid developed physiologically as a weapon against the hypothetic thyroid toxin and as a protective measure. Its development, however, contains the danger—owing to the irritability of the nervous system and the lability of the blood vessels—of an overproduction of thyroid secretion, or the development of hyperthyroidism.

Bilirubin in Human Serum in Health and Disease.—Botzian explains and criticizes the Van der Bergh quantitative test for bilirubin in human serum. He combines this with the diazo test in order to gain an insight into the periodical development of the various forms of jaundice. He found that normal serum contains bilirubin in a concentration of 1.5 units. A slight excess may occur without pathologic cause. In pancreas tumor this value may increase to 1:5,000 (13.7 units); in catarrhal icterus and in atrophy of the liver it reaches 1:10,000; and 50 units (equal to normal undiluted bile) are reached in infectious cholangeitis. The coloring of tissues requires long exposure; at 1:50,000, in latent icterus, bilirubin was found in the urine. The chief result of the studies were that abnormally large bilirubin concentration is a sign of considerable insufficiency of the right ventricle. In cancer of the stomach no abnormal increase occurs until the liver is involved. In pneumonia, an increase often is noticed. In hemolytic icterus there is a great variation of the bilirubin with no positive or at least a retarded response to the diazo test. Splenectomy in one case terminated an attack

of icterus and reduced the bilirubin concentration to normal, but in four and a half months it rose to 4.1 units owing to compensatory proliferation of reticulo-endothelial tissues, and the hemolytic bilirubin was changed to "stasis bilirubin" with direct as well as indirect diazo reaction. In the venous and in the arterial blood of the spleen, in hemolytic icterus, identical bilirubin amounts were found.

Postoperative Intestinal Diseases, especially Colitis.—Goldschmidt and Mülleder found enteritis in 29.3 per cent. of cases after extensive operations on the stomach, the pathologic picture resembling that of dysentery. The material consisted of 203 cases, seventy followed by enteritis and ten by colitis. Ten cases are described in detail. A therapeutic use of hydrochloric acid is strongly recommended, and corresponds to the postoperative demand for acid food. Pepsin therapy is indicated.

Münchener medizinische Wochenschrift, Munich

Nov. 5, 1920, **67**, No. 45

*Operative Treatment of Joint Fractures. C. Ritter.—p. 1281.
*Deafness in Gout. A. Scheibe.—p. 1282.
*Ear Changes in Gout. H. Marx,—p. 1283.
Effect of Shepherd's Purse on the Uterus. M. Kochmann.—p. 1284.
Hypophysis and Raynaud's Disease. B. O. Pribram.—p. 1284.
*Urobilin in Duodenal Secretion. H. Strauss and L. Hahn.—p. 1286.
*Roentgenography and Stones of Appendix. F. Kleeblatt.—p. 1289.
Diseased Condition of the Second Metatarsophalangeal Articulation. A. Köhler.—p. 1289.
*Calcium Chlorid for Hemorrhages. W. Neumann.—p. 1290.
Part Played by Albumins and Globulins in the Wassermann Reaction. H. Felke.—p. 1291.
Infectious Thrombosis. W. Schütt.—p. 1292.
Pulse Phenomenon in Optic Disk in Extrasystole. Ascher.—p. 1292.
Spontaneous Entero-Anastomosis by Foreign Body. Kaiser.—p. 1293.
Use of the Cautery in French Internal Medicine. F. Schotten.—p. 1294.
Steinach's Rejuvenation Experiments. F. Freudenberg.—p. 1294.
Cataplexis (Sudden Paralysis). Drosch.—p. 1294.

Operative Treatment of Joint Fractures.—Ritter says that good bony union from operative treatment of joint fractures cannot be assured unless we can prevent the synovial fluid from exerting an influence on the fracture. He recommends enveloping the whole fracture with fascia or periosteum so that it lies entirely extracapsular. He refers more particularly to fractures of the patella, the olecranon and the neck of the femur.

Deafness in Gout.—Scheibe calls attention to a peculiar type of deafness that he has found frequently associated with gout. He discusses thirty-eight cases, which he divides into two groups. In the first group (eighteen cases) there was an acute onset of the deafness. It was for the most part unilateral, apparently due to an affection of the auditory nerve, and was characterized by dizziness, tinnitus and inability to hear deep tones. The second group differed from the first in that the patient did not complain of dizziness but often of buzzing in the ears. Some said they did not notice their deafness except in the presence of loud noise; as, for example, when many were talking at once, or when a rumbling wagon or train passed by. Some said they heard high tones; e. g., a bell, less well than others present. Several of the second group were tested near a rotating centrifuge; whereas normal persons could understand counting in a whisper at a distance of from 2 to 4 meters, the gouty patients could understand only at a distance of from 0.25 to 1.0 meter, though in a quiet room their hearing was virtually normal. The acute onset and the fact that the condition was unilateral in the first group suggest the deposition of urates in joints (that is, provided there is any connection with gout), whereas the gradual loss of ability to detect high tones, which characterized the second group, leads one to suspect a degenerative process in consequence of deranged metabolism. It was strange, however, that the deafness did not progress further. Whether the seat of the trouble was in the labyrinth, in the auditory nerve trunk or nearer to the nerve center, did not appear, as no histologic investigations have been made as yet.

Ear Changes in Gout.—In the first of Marx' two cases, the young man of 32 was referred to him on account of suspected mastoiditis. Behind the left ear, on the planum mastoideum, there was a circumscribed highly sensitive swelling together with marked reddening of the skin. The auditory canal and the tympanic membrane were entirely normal. Hearing was unimpaired. Temperature was normal and the patient felt well. Hot fomentations were prescribed. A definite diagnosis was deferred. When the patient returned the following day, examination revealed on his foot the typical picture of an acute attack of gout. The swelling behind the ear yielded to general treatment and applications of heat. The second patient was referred for an eventual mastoid operation. He had been taking treatment for some time for gout and rheumatism, and had been suffering for two days from severe pains back of the left ear. Examination revealed a hard, fixed swelling on a level with the linea temporalis behind the auricula. The skin was very red; otherwise normal. The tympanic membrane was pale and there was a small, old calcareous deposit; otherwise everything was normal. The general examination revealed changes due to gout, on hands and feet. There was no evidence of an acute process. The swelling quickly subsided under general treatment and local applications of heat. Marx assumes that in both cases there was an acute attack of gout with localization in the region of the mastoid process. These are the first cases of the kind that he has heard of.

Urobilin in the Duodenal Secretion.—Strauss and Hahn found that the bile excreted into the duodenum always contains urobilin. The volume of urobilin found in the duodenal secretion in diseases of the kidneys is not different from normal. The urobilin derived from the duodenal secretion contains bile acids as does the stercobilin occurring in the feces.

Appendix Stones and Roentgenography.—Kleeblatt has found that roentgenographic examination of the right lower abdomen is of great value in differentiating ureter from appendix stones. The therapeutic procedures required are different. The roentgenographic differential diagnosis of appendix stones and calcareous deposits in the mesenteric glands is also important, as the latter condition generally points to tuberculous processes, in which the indications for operation will depend on individual conditions, whereas demonstration of an enterolith, on account of the danger of stasis in the contracted portion of the appendix, with resulting inflammation and gangrene, is always a plain indication for operation.

Intravenous Injections of Calcium Chlorid in the Treatment of Hemorrhages and Diarrhea.—Neumann uses a 10 per cent. solution for intravenous injections of calcium chlorid, which he prefers to administration by mouth, if for no other reason, because the disagreeable taste is avoided, but he thinks the effect is also better. Calcium chlorid injections are indicated especially in hemorrhage of the lung, and the results are excellent. The effect of the calcium chlorid is not so transient as that of sodium chlorid, and it seems to go deeper. From 5 to 10 c.c. of the 10 per cent. solution injected from two to five times a day into the ulnar vein brings the hemorrhage to a standstill, in the majority of cases, within twenty-four hours. If the patient has no fever, he may be allowed to get up for increasingly long intervals. The tendency to hemoptysis is usually thus quickly overcome. Intravenous injections of calcium chlorid accomplish also good results in chronic and, at times, in acute diarrhea.

Svenska Läkaresällskapets Handlingar, Stockholm

Dec. 31, 1920, **46**, No. 4

*Personal Prophylaxis Against Typhus. C. Näslund.—p. 105.
Sources of Vitreous Humor. J. W. Nordenson.—p. 119.

Personal Prophylaxis Against Typhus.—Näslund was with the Swedish Red Cross ambulance sent to Poland last year to fight typhus. The prophylactic garment worn by each of the twenty members of the party was loose and comfortable but not clumsy, and the protection against lice was absolute during their two months of intensive handling of the almost innumerable typhus cases. The garment was in a single piece, the opening across the chest, and this opening was protected with a broad sheet of rubber tissue smeared with camphorated petrolatum. The hood had a 3 cm. border of nickeled metal around the face, experience having shown that lice are unable to pass this smooth and slippery brim. Rubber gloves to the elbow complete the outfit. These garments were hoisted by a crane into a cask to be disinfected with hydrocyanic acid. The article is illustrated.